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Tuberculous Myocardial Aneurysm With Rupture and Sudden Death from Tamponade

Review of the Literature and Report of a Case

K. P. Jones, M.D.
Kula, Maui
and
I. L. Tilden, M.D.
Honolulu

Spontaneous rupture of the heart due to tuberculosis is an extremely rare occurrence. Krumbhaar and Crowell [1], in 1925, analyzed 654 cases of spontaneous rupture of the myocardium and discovered only one case due to tuberculosis, and this was based upon rather antiquated and questionable data. Isolated tuberculous myocarditis is in itself quite rare, as attested by Horn and Saphir's review of the literature in 1935[2] and Saphir's later review of myocarditis which appeared recently in the Archives of Pathology [3]. Direct extension of a tuberculous process to the myocardium from a preexisting pericarditis, however, is met with more frequently.

There are only two references in the Index Medicus from 1922 to date which can be interpreted as referring to spontaneous rupture of the myocardium due to tuberculosis; unfortunately, both of these papers appeared in the foreign literature and are not available to us here [4]. There is no such reference on record in the Surgeon General's Library. There is *no* case on record, so far as we can find out, of a tuberculous *aneurysm* of the left ventricle which ruptured spontaneously, producing sudden death from tamponade. It accordingly seems worthwhile to present the following case, possibly the first of its kind to be recorded.

In this connection the words of E. Lloyd Wilbur [5] appear almost prophetic. This author described a case of congestive heart failure of obscure etiology which was found at autopsy to be due to unsuspected tuberculosis of the myocardium, and reported 3 additional cases of tuberculous myocarditis. In one of the latter (Case 3) there was tuberculous extension from the pericardium through the atrium to a point of ulceration on the endocardium, although the process was evidently so walled off that hemopericardium had not occurred. Referring to this case, Wilbur states: "This . . . [factor to consider] is the possibility of rupture through a caseous area that extends from an intracardiac chamber to the pericardial cavity. This could result in sudden death due to tamponade."

Case Report

W. H., an 11 year old girl, entered Kula Sanatorium on May 17, 1939, with a diagnosis of tuberculous cervical adenitis and primary hilar adenitis. No parenchymal lung lesion was seen in the admission roentgenogram.

Both parents had pulmonary tuberculosis. In other respects the family and personal histories were negative. The patient's temperature on admission varied from 100 to 103 F and dropped during her hospital stay to a maximum fluctuation of 98 to 99.8 F. Her pulse ranged from 90 to 110. The heart sounds were normal to auscultation and both heart and lungs appeared normal by X-ray (Fig. 1.) although fluoroscopic examination by Dr. Sanders on March 5, 1941, revealed "the upper pole of the left hilum somewhat distorted and pulled upward—possibly old hilar lesion."

Laboratory study showed a white blood count of 11,500, of which 76% were neutrophiles, about one half of these being band forms, and 24% lymphocytes. The

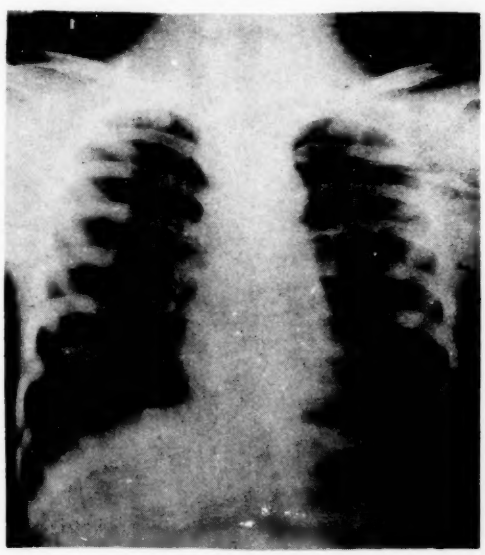

Fig. 1. X ray showing normal appearing heart and lungs.

erythrocyte count was 4,000,000. The sedimentation rate by a modified Westergren method was 13 mm. per hour. (Normal: 3 to 7 mm. per hour for women.) Urine examinations were negative and numerous specimens of sputum and stomach washings were negative for tubercle bacilli by both smear and cultural methods.

On June 29, 1941, the patient was given a glass of milk at bedtime, and just as she had finished drinking it, while still sitting up in bed, she gasped, fell forward and expired a few minutes later.

PATHOLOGIC REPORT

(Significant findings)

The lungs presented no gross abnormality. The pericardial sac was greatly distended by a large amount of recent blood clot and sero-sanguinous fluid. The heart weighed 227 grams. The pericardial surface was generally smooth except in several areas near the base where tags of exudate were present. At the base of the left ventricle was a saccular aneurysm which measured 3 cm. in diameter at its origin and slightly over 3 cm. in length, with a wall which varied from 3 to 7 mm. in thickness (Fig. 2.) It was lined by endocardium and communicated freely with the left ventricle just below the mitral valve. Near its apex was a circular defect 5 mm. in diameter. The wall of the aneurysmal sac consisted of rather friable brownish-gray tissue mottled with white. The adjacent left ventricle measured 2 cm. in thickness and presented several firm, white, irregular, more or less confluent nodules 0.5 to 1.5 cm. in diameter just at the origin of the aneurysmal sac. This region was rather sharply marked off from the remainder of the myocardium, which was normal in appearance. The right ventricle revealed no gross abnormality; all of the valves were thin and pliable and entirely normal in appearance. The first portion of the aorta appeared slightly thickened and the intima was discolored. The orifices of the coronary arteries were open, and both arteries presented a smooth, shining intima.

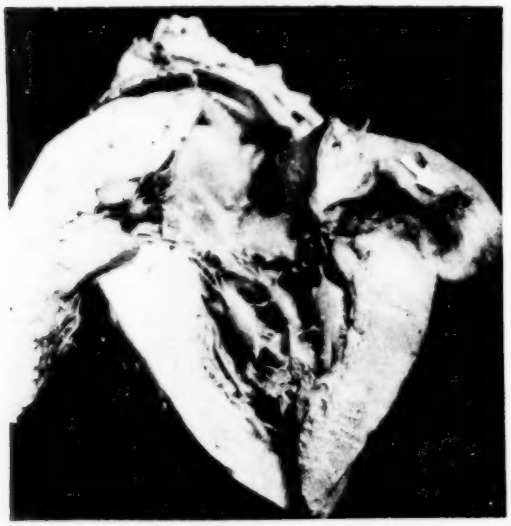

Fig. 2. Section of heart. Arrow indicates aneurysm.

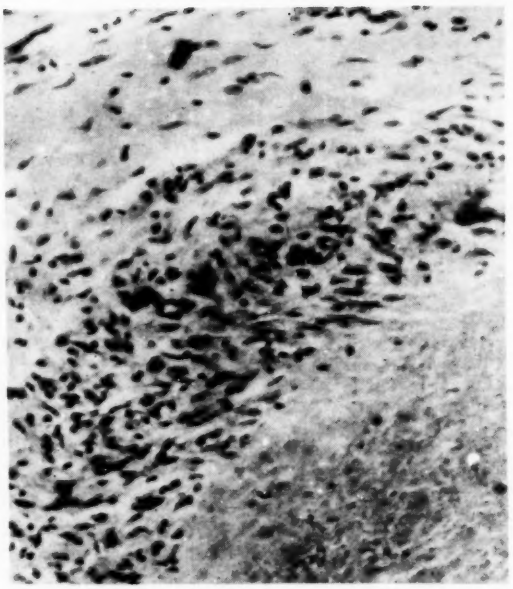

Fig. 3. Photomicrograph showing central caseation (lower right), a zone of epithelioid cells and lymphocytes just above, and muscle fibers above this.

Microscopic examination of blocks of tissue from the aneurysmal sac and the base of the left ventricle disclosed the histologic changes typically associated with tuberculosis: small and large discrete and confluent tubercles made up of the usual caseated centers with epithelioid cells and occasional poorly formed Langhans giant cells at periphery (Fig. 3.) The intervening muscle in this location was badly damaged; the individual fibers were distorted and granular, partially broken up and infiltrated by lymphocytes. In many fields there was patchy fibrous replacement of destroyed muscle and some evidence of muscle cell regeneration in the form of large irregular hyperchromatic nuclei. Sections made of blocks of tissue taken from the apex revealed a comparatively normal picture, although a few foci of round cells were observed, particularly about blood vessels.

Anatomic Diagnosis:

1. Tuberculous aneurysm, base of left ventricle, ruptured, with hemopericardium.
2. Localized tuberculous pericarditis.

DISCUSSION

Saphir [3] divides tuberculous involvement of the myocardium into the miliary (most common in children), the nodular, and the diffuse infiltrative types. The latter type can be accepted only if the histology is outspokenly that of tuberculosis or if tubercle bacilli can be demonstrated by stain, culture or animal inoculation. This case falls into the nodular group, since the disease was rather sharply limited to the base of the left ventricle; the aneurysm undoubtedly arose in a tuberculoma, probably gradually over a period of months or

even years; certainly the histologic changes bespeak a process of long duration. The presence of regional pericarditis indicates that the process probably reached the heart by direct extension from a focus in the hilar lymphnodes. The absence of miliary involvement of the heart and other organs argues against a hematogenous origin.

SUMMARY

A case of tuberculous aneurysm of the heart with rupture and sudden death from tamponade is reported. It is possibly the first case of its kind to be recorded.

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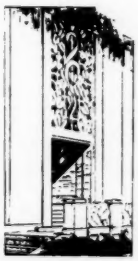

Tuberculosis in the War and Post-War Period

H. M. Izumi, M.D.
Kula, Maui

As everyone knows, the mortality from tuberculosis has consistently declined throughout the world in the past fifty years. This Territory likewise has shown a downward trend. In 1920, the mortality rate in the Territory was 200 per 100,000; in 1930, 106; and in 1940 the tuberculosis mortality rate reached the new low of 63 per 100,000. Our anti-tuberculosis programs, incorporating education of patients and the general public, improved methods of diagnosis and treatment, and the betterment of socio-economic conditions, have all been contributing factors toward this rapid decline in death rate.

In the flare of the present war and in the period to follow, what might we expect as to the trend of this disease? It has often been pointed out that the greatest destroyer of men is not the war machines of the enemy, but the domestic sabotage resulting from unnecessary health hazards. The present war is likely to be accompanied by a definite reduction in our standard of living, by food shortages, by overcrowding, by increased health hazards entailed by "blackout" precautions, to say nothing of the added mental and physical strain, and disruption of regulated hours of rest.

In view of these we may expect an adverse trend in the incidence and mortality of tuberculosis in the near future. Our hope in mitigating this trend falls on the already-burdened shoulders of our profession. In this emergency, more than ever, clinical acumen must be relied upon, but the detection of this disease in its favorable stages demands, in almost all cases, x-ray or equivalent studies.

Early diagnosis, early treatment and control have long been accepted as vital in maintaining the downward trend of incidence and mortality of tuberculosis. The responsibility of early diagnosis will, as in the past, oftentimes be that of the general practitioner who first sees the patient. Treatment and rehabilitation of cases, and the follow-up of family and intimate contacts can, if desired, be handled through those agencies and institutions staffed by personnel trained to this work. Local industry by continuing its pre-war cooperation in seeking tuberculosis in its employees, may make an invaluable contribution to future community health. It is only in this spirit of total cooperation that some hopeful accomplishments may be achieved in combating the otherwise adverse outlook concerning tuberculosis.

The following table illustrates the results of the Maui Case-Finding Program, carried out by Drs. C. J. Wilen, R. G. Benson, R. T. Eklund, H. M. Izumi and J. F. Sanders. What will a similar table show a year from now?

Maui Case-Finding Program
1935 to 1942

	1935-1940	1940	1941	Total
Total number tested	31,481	3,129	1,783	36,393
Positive reactions	10,575	877	630	12,082
Per cent positive reactions	33.59	28.02	35.33	33.20
Demonstrable X-ray lesions	556	56	20	63
Childhood type—primary	382	12	11	40
Adult type	174	44	9	22
Pulmonary Tb.—minimal	101	34	5	14
Pulmonary Tb.—mod. adv.	35	10	3	4
Pulmonary Tb.—far adv.	9	0	0	
Pulmonary Tb.—healed	14	0	0	1
Hilar Tb.—healed	0	0	1	
Unclassified	15	0	0	1

Dermoid Cyst of the Ovary Complicating Pregnancy

Report of a Case

H. H. Seiler, M.D.
Paia, Maui

Dermoid cysts of the ovary are not uncommon, constituting about 10 per cent of all ovarian tumors according to Curtis[1]. They may occur at any age but are most common during the years of sexual activity. In a series of 15,000 women receiving treatment at Luthardt's clinic in Leipzig[2], 826 (6 per cent) were operated on for ovarian tumors. Of these, 8.7 per cent presented dermoid cysts. In 86 per cent of these cases the tumor was unilateral and in 14 per cent bilateral. Twisting of the pedicle occurred in 13.6 per cent, the highest degree of torsion being 720 degrees. Simultaneous pregnancy was present in 7 per cent of cases.

Because of their slow growth and frequently long pedicle, dermoids are more prone to complications than are other ovarian tumors. These may be adhesions, incarceration, torsion, infection, rupture, and malignancy. However, until the advent of some complicating factor, dermoids may, especially if small, be singularly free from symptoms. It is generally conceded that dermoids respond to no other form of treatment than surgical extirpation. Bowles, in Honolulu, in an interesting review[3], has recently added to the literature 5 cases of bilateral ovarian dermoid cysts complicating pregnancy, bringing the total number of such cases reported to 52. Andrews and his colleagues[4] have reviewed the literature and written an excellent analysis of the reported cases.

Herewith is presented a case of dermoid cyst of the right ovary with strangulation and necrosis following 540 degrees' torsion on its pedicle, occuring during the seventh month of pregnancy.

Case Report

History: M.N., a 37 year old Japanese housewife, was admitted to Paia Hospital on the morning of January 17, 1942, complaining of acute abdominal pain in the right lower quadrant since the previous night. This pain was quite localized, and nausea and vomiting had occurred on 3 occasions during the night. Patient was in her estimated seventh month of pregnancy, para 6, gravida 7, estimated date of confinement April 8th. There had been no vaginal bleeding or discharge with the present illness, no uterine contractions, no diarrhea or constipation, no complaints referable to the respiratory or urinary tracts. The menstrual history had not been remarkable. Past history was noncontributory, the patient having been free from illness except for the usual childhood diseases and occasional eye disease. She last saw a doctor six years ago with the birth of her fifth child. Her sixth baby was born at home three years ago, the husband acting as midwife, and the delivery was apparently uneventful. This woman was of the stoic, "old country" type who speak only Japanese, live in one of the more isolated plantation camps, and seek medical care only when driven to do so by some major incentive such as severe pain. Thus she had not been attending the monthly prenatal clinic provided for plantation employees.

Examination: Patient was a well-developed, moderately obese Japanese female, apparent age 40, abdomen rotund and prominent to correspond with the final trimester of pregnancy. Her facial expression on admission suggested pain. Temperature 100.2 F, pulse 88, respirations 26. Eyes, ears, nose and throat not remarkable. Poor oral hygiene. Chest clear throughout. Heart normal to auscultation and percussion. Colostrum expressed from both breasts. Abdomen large, round, and firm. Fundus of the gravid uterus palpated 5 cm. below the ensiform process. Leopold's maneuvers revealed vertex presentation, position left occiput anterior. Fetal heart rate 168, left lower quadrant. Palpation of right lower quadrant elicited marked tenderness and muscle guard seemingly centralized at a point about one-third the distance between the iliac spine and umbilicus. Rebound tenderness present. No mass palpated. Kidneys and other organs not palpable. Pelvic examination revealed a soft, patulous cervix against the large mass of the uterus; it was otherwise negative, except for the fact that on bimanual examination the abdominal hand elicited the same tenderness in the right lower quadrant. No adnexal detail could be made out, due to the large size of the uterus. Rectal examination was corroboratory.

Urinalysis was normal, showing only 1 plus leukocytes and 1 plus epithelial cells in a catheterized specimen. White blood count was 13,500 with 87 per cent polymorphonuclears.

Clinical Course: Because of the localized character of the pain, the fever, leukocytosis, rebound tenderness, and absence of other findings, a diagnosis of acute appendicitis was made and immediate operation performed. In view of the patient's concomitant pregnancy, McBurney incision was thought advisable so as not to weaken the abdominal wall more than necessary. Upon incising the peritoneum, a moderate amount of straw-colored fluid presented itself. When this was withdrawn, the anterolateral aspect of the uterus was seen, and, dipping down into the superior half inch of the wound there was seen the tip of a smooth, black mass. The incision was elongated upwards and somewhat laterally, exposing a dark

ovarian cyst twisted one and a half times on its pedicle. The mass was the size of a small fist, boggy, and somewhat flattened and ovoid, rather than round, due to being pressed between the uterus and the abdominal wall. The Fallopian tube was incorporated as part of the tumor, the ovary itself was obliterated, and there was no evidence of a corpus luteum. The broad ligament was a mass of varicosities. The pedicle was doubly clamped and ligated, and the cyst excised. The peritoneum and abdominal wall were closed by layers in the routine manner.

The post-operative course was quite uneventful and the patient discharged on the twelfth day. At no time during her convalescence did she threaten to go into premature labor. One cc. of lipolutin (hypo) was given daily for the first six postoperative days as an aid in warding off this undesirable event.

Pathologic Report: Gross examination of the specimen revealed a flat, ovoid tumor measuring 8x6x4 cm. It was darkly discolored and a Fallopian tube was present at one pole, partially incorporated into the tumor. Upon sectioning, the tumor was seen to consist of 2 main compartments, the larger of which contained the dermoid process. A section of bone was present from which 3 or 4 teeth were arising. Both compartments contained black, matted hair and thick sebaceous material. Several microscopic sections were made, but because of the advanced necrosis everywhere no conclusions as to the nature of the tumor could be drawn microscopically. The gross examination was, of course, diagnostic. (Pathologic study done by Dr. I. L. Tilden.)

COMMENT

Possibly this cyst should have been palpated abdominally when the patient was first examined. However, due to the position of the cyst and its boggy consistency, and with the already large uterine mass and thick abdominal wall, I believe the mass was probably actually not palpable, rather than merely overlooked. At least, no suggestion of a mass occurred to any of the three physicians who examined the patient.

It is felt that the clinical picture, strongly suggestive of acute appendicitis, warranted the McBurney approach in a seven months' pregnant woman. No attempt is made to explain why the phenomenon of rebound tenderness was positive in this case, unless it be due to the fact that the close proximity of the organs involved, namely the uterus and the right adnexal mass, was such as to transmit a painful impulse when pressure was exerted in the left lower quadrant.

The possibility of bilateral disease must be kept in mind. It was impossible to explore the opposite ovary at time of operation, due to the size of the uterus and type of incision. However, more satisfactory pelvic examination will be done some weeks following delivery, and the patient is being kept constantly under surveillance with this in mind. X-ray is also planned to reveal any teeth or bony structures which might be present in a left-sided dermoid. She is now at term and expected to deliver shortly. In addition, she has requested sterilization at some future date. If this procedure is carried out, a more satisfactory examination of the left adnexa can be made.[5]

SUMMARY

A case of right ovarian dermoid cyst strangulating in the seventh month of pregnancy and simulating acute appendicitis has been presented. Figures for unilateral dermoids complicating pregnancy are not given, but Bowles has stated in a recent article that the total of reported bilateral cases is now 52. It is the intention of the author to follow this case for a number of months in an effort eventually to determine whether we are here dealing with a unilateral or bilateral condition, and, if the latter be found, to report it at some future date.

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5. The patient was delivered of a normal boy on April 25th, and a roentgenogram revealed no evidence of contralateral disease.

The Need for Autopsies in Stillbirths and Neonatal Deaths

WILLIAM B. PATTERSON, M.D.
Puunene, Maui

When an infant is born dead or dies shortly after birth, an autopsy should always be performed to determine the cause of death. Such deaths should not be signed out as "congenital hearts" or the like unless there is pathological evidence of such. If a woman goes through pregnancy and is deprived of a living child at the end, the least the doctor can do is to accurately determine the cause of death by autopsy. It is also important for the sake of vital statistics that the cause of death be correct.

For two years I was on the resident staffs of teaching maternity hospitals where autopsies were performed on all stillbirths and neonatal deaths. During this time over 3,000 babies were born in these hospitals, with a death rate varying from 0 to 5% from month to month. I can remember only one case in which we could not determine the cause of death at autopsy. This was a term baby that died six hours after cesarean section.

In June, 1941, there were 3 neonatal deaths at the Puunene Hospital. With a total of 25 births this gives a high percentage of deaths, but autopsies were performed on all 3 cases and conditions incompatible with life were found. A brief summary of these cases is presented.

CASE REPORTS

Case 1. Primipara admitted on first visit with severe toxemia at seven and one-half months. X-ray showed twins. After two days' rest, labor was induced by Voorhees bag. A short labor followed, and the first baby was born spontaneously. This baby cried and its condition was good from the start. The second baby was born spontaneously soon after the first, but it failed to cry and remained blue for thirty minutes. With the aid of oxygen its condition improved temporarily, but even with oxygen it continued to have a red cyanosis. There was no heart murmur. It died after twenty hours. Autopsy showed an interventricular septal defect extending the length of the septum. Clinically this was evidenced by the red "cyanosis."

Case 2. Spontaneous delivery at term, and appeared normal at birth. After twelve hours baby choked while taking water and became cyanotic. No breath sound could be heard in the left chest. Death occurred after eighteen hours in spite of oxygen therapy. Autopsy revealed a diaphragmatic hernia with an opening 2 cm. in diameter in the center of the left side of the diaphragm. The stomach, small intestine, and part of the large intestine were in the left pleural cavity, and the left lung had never expanded. This case could have been diagnosed by X-ray either before or after death, except that before death it could not live without oxygen once the symptoms developed.

Case 3. Delivered in home at term by a midwife. Baby remained blue for two hours and doctor was called. No heart murmur was heard. Oxygen therapy was given and color was good. Death occurred after twelve hours. Autopsy showed an interauricular septal defect: the flap that normally closes the foramen ovale was imperfect, and did not close the foramen at all. The foramen was oval in shape and much larger than normal. It measured 1 by 0.5 cm.

COMMENT

In all three of the above cases I was able to tell the parents the exact cause of death, and they were all satisfied. One can often diagnose the cause of death by clinical signs, but not always. A baby that becomes cyanotic and dies within the first few hours or days of life may have intracranial hemorrhage or damage without a bulging fontanelle. He may have congenital heart disease without a murmur or enlargement. I have seen cases die of cerebral edema without hemorrhage, that were delivered spontaneously after a short labor. The fontanelles in such cases are very tense, and when the head is opened the brain substance protrudes. Microscopic sections will also show the edema.

Where a difficult forceps delivery has resulted in death of the infant, an autopsy may reveal abnormalities incompatible with life. Difficult breech deliveries may develop adrenal hemorrhages that cause death. Syphilis often causes stillbirths and neonatal deaths. A blood Wasserman on every pregnant woman before the fourth month of pregnancy will almost prevent this. I have seen a woman who had a negative Wasserman at the third month develop a secondary syphilitic eruption at the eighth month. She went into labor and delivered a premature infant that lived a few hours and died. Autopsy showed the liver loaded with spirochetes.

A woman who has had one congenitally deformed child may ask what are the chances of her having another deformed child. The chances are one in eighty-six, but the incidence of deformed infants increases rapidly after the fifth child.

Trichinosis

Report of Four Cases

Gordon H. Lightner, M.D.,
and
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We report herewith 4 cases of trichinosis seen in Puunene in July and August 1941. The subject of trichinosis has been well treated in the August 9, 1941 issue of the Journal of the American Medical Association by Wyrens and others and also in the American Journal of Medical Sciences for August, 1941, by Most and Helpern. The incidence of asymptomatic trichinosis in New York City, as found in 100 bodies dying from other causes, was said to be 22 per cent. The incidence of trichinosis infestation in Hawaii may well be higher than this, due to the fact that much pork from wild pigs is eaten raw or improperly cooked. This is particularly true of the Filipino bachelor who cooks his own food. The 4 cases reviewed here were all in Filipino bachelors.

Case Reports

Case 1. Filipino, bachelor, 36, complained of headache and aches all over the body. Temperature 103 F. on admission and physical examination negative. Blood count on admission showed 7,800 leukocytes with 15% eosinophils. Urine on admission was negative. Ten days later the white count was 10,200 with 38% eosinophils, and the urine showed 1 plus albumin with granular casts. Muscle biopsy showed encysted Trichinella larvae. The temperature slowly returned to normal and the patient was well after three weeks.

Case 2. Filipino, bachelor, complained of headache, fever and pain in his eyes. Temperature was 101 F on admission but fell to normal on the second day. Patient felt so well he was allowed to go home on the third day. At this time his white count was 6,400 with 23% eosinophils. Urine was normal. Three days later patient returned with a fever of 102 F but physical examination was still negative. The white count at this time was 12,040, with 20% eosinophils. The urine was negative. Four days later the white count was 11,960 with 35% eosinophils. The patient's temperature gradually returned to normal and he was discharged after two weeks. Muscle biopsy showed encysted Trichinella larvae.

Case 3. Filipino, bachelor, 49, complained of a "cold" with general malaise. On admission temperature was 100 F, white count 12,640 with 79% polys and 21% lymphocytes. Urine was normal. Four days later the white count was 18,640 with 32% eosinophils. Muscle biopsy showed encysted Trichinella larvae. Patient gradually improved and was discharged after ten days.

Case 4. Filipino, bachelor, 34, complained of headache, pain in legs, and diplopia. On admission temperature 103 F, white count 7,200 with 17% eosinophils. Urine showed 1 plus albumin and hyaline casts. Three days later the white count was 6,400 with 22% eosinophils. Muscle biopsy was positive for trichinosis. Patient recovered rapidly and diplopia disappeared. He was discharged after ten days.

Comment

Cases 1 and 2 were room-mates who ate the same food. All 4 cases had recently eaten pork, though all the pork was cooked. The pork had been purchased from a reputable meat market, and had passed routine inspection. At the same time that the above cases were in the hospital there were several other patients admitted with similar symptoms of weakness, muscle pains and general malaise, although they did not have a high eosinophile count. They were not very sick and were soon discharged as "colds." Other patients were seen in the out-patient department with the same complaints of weakness in the legs and muscle pains but were not sick enough to stop work. They often gave the complaint of "no more strong" and wanted some medicine for treatment. No doubt there were many cases of trichinosis so mild that the patients never came to see the doctor.

Diagnosis

The symptom of muscle pain is present in almost every clinical case of trichinosis, but it is rarely the chief complaint. The patient usually complains chiefly of general malaise, headache and weakness. These symptoms are accompanied by fever and at the original examination the physician is likely to suspect some other disease such as influenza, typhoid fever, rheumatic fever, etc. The face is often swollen and puffy and this, combined with albuminuria and casts, may cause one to suspect nephritis or angioneurotic edema.

It is interesting to note in the article by Wyrens, et al, that over half their cases complained of ocular symptoms. One of the above cases had diplopia caused by temporary paralysis of the external rectus muscle.

A high eosinophile count is usually the first finding which makes one think of trichinosis. The eosinophile count may not be high early, as in Case 3, where there were no eosinophils originally. Blood counts repeated every four days will show the percentage of eosinophils rising if trichinosis is present. It may reach 60%.

TREATMENT

There is no specific treatment for trichinosis. Bed rest and symptomatic treatment for a few days or weeks usually is sufficient for recovery. However, permanent muscle damage results in all cases, the degree depending on the massiveness of the infestation. Other localized symptoms may remain depending upon the sites in which larvae lodge and become encysted.

It is important to make a correct diagnosis because more rest is required than with "flu" or a "cold", which is usually the original diagnosis. If exercise is attempted too early there will be a recurrence of all symptoms. This is easy to understand when one examines a stained section of muscle tissue from even a mild case. There is an extensive round cell infiltration throughout the muscle although only occasional encysted larvae are found.

By making a diagnosis and reporting the case to the proper authorities, physicians can help to prevent additional infested pork from reaching the market. Also, people should be educated to cook all pork properly if it is known that occasional infestation exists.

SUMMARY

The clinical picture of trichinosis has been briefly reviewed, and 4 cases of this disease occurring on the Island of Maui have been reported.

Ether per Rectum in the Treatment of Status Asthmaticus

Report of A Case

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Bronchial asthma appears to be as common a condition in Hawaii as on the Mainland. The asthmatic attack can generally be terminated by the use of such drugs as epinephrine, ephedrine or aminophyllin. However, occasionally we see severe and prolonged attacks—status asthmaticus—with marked dyspnea, cyanosis, and even right heart failure, which are resistant to ordinary therapy. The following case is an example.

Case Report

An 18 year old Porto Rican boy was admitted to the hospital with a severe asthmatic attack of about twenty-four hours' duration. He stated that he had had asthma as long as he could remember, with attacks varying in severity. His past history was otherwise not contributory.

Physical examination revealed a well-developed adolescent Porto Rican with marked expiratory dyspnea. On ausculation of the chest rales of the usual "accordion" type were heard. The heart sounds were normal except for some accentuation of the pulmonic second sound.

The boy was started on 5 minim (0.3 cc.) doses of epinephrine hydrochloride 1:1000, p.r.n. For about the first 6 hours of the regime he got slight relief; then he seemed to become resistant, and the drug had no effect upon the dyspnea. At this time the treatment was changed to ephedrine by injection; however this, too, had no beneficial effect. Next intravenous aminophyllin was tried, and finally morphine plus atropine. In spite of all this the asthma continued to increase in intensity and there was an obvious development of right heart failure.

The boy's condition was rapidly becoming desperate. He refused to permit a general anesthesia. It was decided to try ether by rectum in the manner originally described by Gwathmey for obstetrical anesthesia. He was given a cleansing soapsuds enema, followed by 80 cc. of ether in 120 cc. of olive oil as a retention enema.

In about ten minutes he began to cough up thick, tenacious sputum and at the same time the dyspnea began to decrease. Thirty minutes after the administration of the ether the attack had terminated and the patient was completely comfortable; he was free from his asthma for about eighteen hours when another equally severe attack developed. The ether per rectum was repeated, with similar results. He then remained free from asthma for the remainder of his hospitalization.

Summary

A case of status asthmaticus which proved resistant to epinephrine, ephedrine, and aminophyllin was successfully treated with ether by rectum by the Gwathmey method, a procedure which seems to me both simpler and safer than inhalation anesthesia.

Acute Pancreatitis

Report of a Case Responding to Intravenous Sulfathiazole

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Case Report

A Japanese man, age 68, was admitted to Paia Hospital on September 4, complaining of lancinating pain in the pit of his stomach. The pain was so severe that the patient had to be carried in. It was associated with nausea and vomiting.

Approximately 45 minutes before admission, while riding a horse, the patient had suddenly been seized with violent mid-abdominal pain. There was some radiation of pain to the back but not to the shoulder or scapula region. A few minutes after pain started, nausea and vomiting ensued.

There was a past history of indigestion for several years. Eight years before, a cholecystostomy had been done, with removal of a solitary stone. The patient had also had numerous attacks of rheumatism in his left foot, right shoulder, both wrists, and both elbows.

Examination disclosed a thin, elderly Japanese man, assuming an almost complete lateral knee-chest position in bed; his expression was anxious, and he appeared acutely ill.

Physical examination was not remarkable except for a tachycardia of 110 per minute and boardlike rigidity of the abdominal muscles. Blood pressure was 110/70. An upper right rectus scar was present.

There was a leucocytosis of 11,400; polys 79%, lymphocytes 20%, monocytes 1%. One hour later this had changed to a count of 14,000, with polys 90%, lymphocytes 9%, and monocytes 1%. The urine contained 4 plus albumin, 1 plus red cells and leucocytes and 1 plus hyaline casts. There was no sugar. Specific gravity was 1.015.

The patient was felt to have a perforated peptic ulcer or possible acute pancreatitis. It should be noted that morphine gr. ½ and depropanex 3 cc., given between admission and his operation two hours later, did not abate the abdominal pain. An infusion of 1,000 cc. of 5% glucose was administered and preparations made for immediate operation. A flat plate of the abdomen revealed no subdiaphragmatic air. A suitable donor was obtained for transfusion following operation.

Under general anesthesia, an incision was outlined about the old scar, resecting it. The gallbladder was adherent to the abdominal wall and was inadvertently opened in the process of entering the peritoneum. There was a moderate amount of "beef broth" fluid escaping from the under surface of the liver and from the lesser peritoneal sac. The common duct was palpated, and no stone found. The stomach and duodenum were normal. The pancreas at its midportion was indurated and swollen to approximately 3 times its normal size. A longitudinal opening was made in the gastro-hepatic ligament to facilitate visualization of this portion of the pancreas. On this surface were numerous extravasations of blood as well as irregular, yellowish plaques, some stellate in outline. This surface of the pancreas was not ruptured nor were any detached fragments of the organ observed.

A horizontal incision was made through the midportion of the pancreas, where the induration was greatest; at this time a biopsy specimen was removed. The opening in the gallbladder permitted exploration of the common, hepatic, and cystic ducts, from which approximately 10 cc. of gallbladder sand was removed. No other stones were encountered. The gallbladder was drained in routine fashion; a cigarette drain was carried down to the foramen of Winslow; another cigarette drain was placed over the incised portion of the pancreas; and still a third drain was carried to the cul-de-sac. A Levine tube with Wangensteen suction was inserted.

The patient was given 70 cc. intravenously of a 5% sodium sulfathiazole monohydrate solution. Sulfathiazole was given orally in a dose of 15 grains (1 gram) every 4 hours; after each dose, the stomach tube was clamped for 30 minutes. Eighteen hours postoperatively, the patient's pulse was 140, and his temperature was 101.4 F. At this time 500 cc. of citrated blood was given, following which there was notable improvement, characterized by decrease in pulse rate and the patient's expression of feeling stronger.

The patient remained desperately sick but progressively improved for the first seven days, during which time sulfathiazole was continued by mouth in decreasing doses, at least 45 grains (3 grams) daily. The Levine tube was removed on the third postoperative day, and all drains except the catheter drain in the gallbladder were removed by the fifth postoperative day. The latter extruded itself on the tenth day.

On the eighth postoperative day, the left foot, Lisfranc's joint,* was acutely inflamed, tender, and swollen. Despite the local discomfort, the patient's general condition seemed satisfactory, though his moderate remittent fever presisted.

For the ensuing seven days, the patient's general condition remained unchanged and he took food well. The temperature now began an intermittent course, and the index finger on the right hand became the site of an acute arthritic process, which subsided by the seventeenth postoperative day. On this day, the temperature rose to 101.4 F, there was some grunting respiration, the pulse increased to 120, the respirations likewise increased, and the excursion of respiration

*Editor's note: Lisfranc's joint is the metatarsophalangeal articulation.

was definitely limited. A roentgenogram of the chest revealed a massive atelectasis on the right side, and a considerable mediastinal shift.

Under local anesthesia the patient was bronchoscoped by Dr. T. W. Cowan, and no mucous plug was found. Hyperventilation was done, and within twelve hours' time, the patient was clinically improved to his original state. Bile drainage from the wound still persisted.

On the twenty-sixth postoperative day, he complained of sharp pain in the left anterior axillary line about the level of the diaphragm, and a definite pleural rub could be heard there on auscultation. A roentgenogram on this day revealed no parenchymal infiltration and no fluid on the painful side; the opposite side also appeared to be completely normal.

Drainage from the incision progressively decreased. The patient's sense of well-being improved, and clinically he appeared sufficiently well to be discharged on the thirty-fourth postoperative day. Upon discharge from the hospital, he was given a supply of vitamin B for oral administration, and was directed to adhere to a high-protein, low-fat diet, and return every five days for a change in dressing.

Within ten days after discharge, the wound had completely healed, and the patient was feeling much stronger. Subsequent checkups at the end of one and two months revealed a diminution in pathologic urinary elements; there was a faint trace of sugar on occasions, but no fasting glycosuria.

PATHOLOGIC DIAGNOSIS

A specimen of pancreas revealed myriads of polymorphonuclear cells infiltrating the interstitial tissue and surrounding the lobules. The acinar cells were relatively little involved and seemed normal in appearance. The findings were those of acute interstitial pancreatitis.

COMMENT

This 68 year old Japanese was desperately sick on admission and after operation, and during hospitalization presented several distressing surgical complications. At the present time, he seems completely well and shows no evidence of developing pancreatic insufficiency.

It is my feeling that intravenous sodium sulfathiazole monohydrate, establishing an immediate chemotherapeutic blood level, may have been the most decisive measure in the patient's behalf.

Our laboratory has not been equipped to do blood sulfonamide determinations, hence, a complete evaluation of drug therapy in this case is impossible.

Clinical Aspects of an Epidemic of Typhoid Fever

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Between February 25, 1942 and March 21, 1942, 60 patients with typhoid fever were admitted to a local hospital.* All of these cases except 2 occurred in children between the ages of 12 and 16 who attended a local junior high school. One of the exceptions was a secondary case. Her brother, who was ill at home with typhoid fever, attended this school, but she did not. The other exception was a 27 year old man who had no direct nor indirect connection with the school. Investigation by public health authorities disclosed evidence indicating that a healthy fecal carrier, employed as a food handler in the school, produced the epidemic by contaminating food eaten by the pupils.

CLINICAL COURSE

It is well known that typhoid fever is a disease which shows considerable variability in its manifestations; therefore, discrepancy between the symptoms encountered in a given case or epidemic and those described as typically occurring in typhoid fever are to be expected. Nevertheless, the incidence of a few of the signs and symptoms present in this series of cases differed so markedly from the expected incidence that the divergence is worthy of note.

The onset of the disease in almost all of these cases was moderately abrupt. Within two or three days after the first deviation from a normal state of health, the patient was moderately severely ill with a febrile illness whose most frequent manifestations besides chilliness and fever were headache, diarrhea, dry cough, abdominal pain, and, least frequently, epistaxis. Onset with marked upper or lower respiratory symptoms, meningeal, or renal symptoms did not occur.

Headache was present in 90 per cent of our cases, but was severe in only one case. There was nothing constant about its location or about the time of day when it was usually experienced. Endemic typhus fever is relatively common in Hawaii. Its outstanding subjective manifestation is severe headache. It would seem that the presence or absence of severe headache is of help in deciding whether an unexplained febrile illness may be typhus or typhoid.

The least common symptom encountered by us was epistaxis. It occurred in 22 per cent of the cases, usually in the first week, but also in the second week of illness. Although its occurrence was infrequent, its presence was helpful in diagnosis, for it was absent in every case sent to the hospital for observation and proved not to be typhoid fever. Respiratory symptoms were never prominent. A mild, dry cough occurred in 36 per cent of the cases. Abdominal pain and diarrhea are known to be frequent in children. Half of the patients had mild or moderate diarrhea (2 to 5 watery yellow or orange defecations daily). It usually began between the third and fifth days of the disease, but its onset was at times deferred until the second week. It is noteworthy that diarrhea was not severe nor was it an initial symptom, and that blood and mucus were absent from the stools. These features are helpful in the differential diagnosis between typhoid fever and acute bacillary dysentery. Abdominal pain was usually not severe, yet 2 of our cases underwent operations for what was believed to be acute appendicitis before transfer to our hospital. Constipation was present in only 7 per cent of the patients.

The temperature curve observed in the great majority of the cases was quite unlike that described as characteristic of typhoid fever. Instead of a step-like rise for about one week, a plateau with small daily remissions for about two weeks, and a step-like decline to normal over a period of about a week, the typical fever in our series was characterized by variations of 5 to 7 degrees within a period of twenty-four hours. Such marked daily remissions were the rule, and the so-called typical "typhoidal" type of fever was the exception.

Physical signs did not follow text book patterns in frequency of occurrence. The most notable

* Name not revealed due to censorship requirements.

discrepancies were the low incidence of palpable spleens and of relative bradycardia. The spleen could be unquestionably felt in only 7 per cent of the patients. Bradycardia was present in only 13 per cent of the cases. It is known that the pulse rate of children ill with typhoid fever is less often slow than the rate in adult patients. A definitely dicrotic pulse was not common. Alopecia did not occur. Sordes of lips and tongue were present only in patients neglected before admission. They are not signs of the disease, but signs of neglect. Half of the patients had a small, slightly inflamed, triangular area at the tip of the tongue with moderate coating of the dorsum, and clean edges. Deafness was noted in 5 per cent of the patients. Unusual odor of perspiration was not detectable except in a few patients on admission, in whom it was attributed to a dirty condition of the body. Rose spots were present in half of the cases. They occurred during the first, second, and third weeks, and were usually present only on the lower chest, abdomen, and lower back, but in 2 cases were on the arms, forearms, and thighs. Abdominal distention was present sometime during the course of illness in about one fifth of the cases. Meningeal symptoms were absent.

The course of the fever observed in our patients will be discussed in connection with the treatment of typhoid fever.

Complications have been stated to occur in 25 to 30 per cent of the cases. Our epidemic ran true to form in this respect, for 22 per cent of the patients had complications. These consisted of intestinal hemorrhage, periostitis, psychosis, pleurisy, and perforation of the ileum. The last 4 each occurred in only 1 patient. It is stated in Tice's *Practice of Medicine* that the occurrence of intestinal hemorrhages is unrelated to the severity of the disease. However, it has been our experience that the incidence of intestinal hemorrhage is directly proportional to the degree of toxemia, for of a total of 14 patients considered severely ill before the onset of the hemorrhage, 7 had hemorrhages; whereas only 3 of 46 patients considered moderately ill experienced intestinal hemorrhage. The amount of blood lost was never more than 500 cc. and was readily compensated for by blood transfusions.

Frequency of relapses has been placed at between 3 and 16 per cent of the cases in various reports. Relapses occurred in 6.5 per cent of our cases. No case had more than one relapse, and the duration of relapse varied between three and five days.

There were 2 deaths in our series: one patient died of toxemia, the other of an intestinal perforation, which was undiagnosed in a comatose patient.

LABORATORY DATA

Leukopenia is said to be the usual finding in typhoid fever. However, in this epidemic the characteristic white blood count was one which would pass for a typically normal blood count; namely, 7 to 8,000 leukocytes with 65 to 75 per cent polymorphonuclear cells. Only 21 per cent of the patients had initial white blood counts of less than 6,000. Another 10 per cent had counts of under 6,000 subsequent to the initial count. Initial leukocyte counts of 10,000 or more were observed in 11 per cent of the patients. As a rule the red blood cell count and the hemoglobin content of the blood were within normal limits, but there were a few severely anemic patients, whose anemia was readily cured by blood transfusions. Urine examination disclosed either nothing abnormal or slight albuminuria and very few pus cells.

Most of our patients (70 per cent) were admitted to the hospital during the second week of illness; 16 per cent were admitted during the third week; and 14 per cent between the fourth and seventh days. Blood cultures were positive in 32 per cent of the cases. Bacteria were found in blood taken as late as the twenty-second day of the disease. Half of the positive blood cultures were obtained as late as the third week of illness. Feces cultures were positive in 64 per cent of the cases. They were most often positive in the third week of the disease, but in 1 case were positive as early as the tenth day. Urine cultures were positive in 59 per cent of the cases. When bacteria could be cultured both from the patients' feces and urine, positive cultures could be obtained no earlier from the urine than from the feces. E. typhi could not be cultured from blood or excreta of only 4 patients.

Fifty-seven of our patients had had no previous inoculations against typhoid fever; 3 had had one or two inoculations during the fourteen days prior to the onset of illness. Agglutination (Widal) tests were positive in all cases in a dilution of 1:160 or higher. Over four fifths of the cases had agglutination tests positive in dilutions of serum of 1:320 or greater; and almost half of them had Widal tests positive in dilutions of 1:640 or greater. There was no ascertainable relationship between the agglutinations of O and H antigens, except that, as a rule, agglutination of the O antigen occurred in a slightly higher dilution than agglutination of the H antigen. When the Widal test was repeated five

days or longer after the initial test, the titre rose, with two exceptions. It was not considered of diagnostic value to repeat Widal tests in most of the cases, for in 93.6 per cent of the patients E. typhi was cultured from blood or excreta or both. A diagnosis of typhoid fever was made either when E. typhi was obtained from blood, feces, or urine, or when a pupil of the junior high school involved became sick between February 25 and March 16 with an unexplained fever of two weeks duration and laboratory examination disclosed a positive Widal test in a dilution of 1:320 with a rising titre. Only one of the patients from whose blood or excreta E. typhi could not be cultured had had previous anti-typhoid inoculations.

TREATMENT

A critical study of articles discussing the treatment of typhoid fever results in a feeling of dissatisfaction and a state of scepticism. For example, bacteriophage is stated to be useful in the treatment of typhoid fever by an author who bases his conclusions on the results obtained by another physician, who did not report his results. The latter treated 10 cases of typhoid fever, used no controls, had 1 death and 9 recoveries[1].

Sulfanilamide was stated to be of value in a series of 7 cases.[2]. All were treated with prontosil and M. & B. 693; there were no controls. In 3 of the cases, the drug was given at a time when spontaneous improvement is to be expected (on the twenty-eighth day in one case, and between the thirty-sixth and fifty-seventh day and eighteenth and twenty-fifth day in other cases.) As a rule the drug was given over a period of five to ten days before improvement was manifest; hence, it is questionable whether improvement was consequent to the administration of the drug or concomitant with it. One of the cases received an anti-serum as well.

Horse anti-serum was used in a milk-borne epidemic.[3] Seventy-three cases were treated: 20 during the first two weeks of the illness, 13 during the third week, and 40 after the third week. There were no controls. The criterion of a favorable effect was the lowering of temperature within forty-eight hours after administration of serum. The temperature did not necessarily have to return to normal, but had to remain lower than before the injection for at least seven days. Mortality rate was 9.5 per cent. The authors believe that beneficial effects of serum may be delayed seven days. A study of the temperature curves of our cases revealed that spontaneous recovery in typhoid is likely to take place within less than seven days from any given date after the second week; hence, 53 of the 73 patients were likely to have a spontaneous recovery at the time they were admitted to the hospital.

"Serum was held to have a favorable effect on both the toxemia and the temperature, but assessment of its value on the basis of mortality rate was impossible, since there were no controls or these were inadequate. Similarly the mortality in treated series as compared with that in other outbreaks where no serum has been used is of no value as a criterion of the disase from one outbreak to another. To control the results adequately it would be necessary to observe the effects in a large series of cases when serum was strictly reserved for alternate patients, all of whom should preferably be at about the same stage of the disease.

"This idea has been closely approached in investigations on anti-pneumococcal serum, but up to the present it is far from being realized in clinical experiments with anti-typhoid serum".[3]

The use of serum obtained from horses inoculated with typhoid bacilli was reported by Robertson and Yu,[4] and by Felix.[5] The former mentions no controls and shows no temperature curves. Many patients were treated in the third week of illness. The latter states that fever was clearly shortened and suppressed in 23 cases, but uninfluenced in 20 cases, and that patients might show a lessening of toxemia without an accompanying effect on pyrexia (this is counter to our experience maintained below, i.e., that the presence and degree of fever is an accurate index of toxicity)

In order to judge the efficacy of therapy, we had to ascertain that the most convenient index, the graphic temperature chart, accurately reflected the state of health of the patient. Inasmuch as nurses attending our patients were unanimous in their belief that a patient's toxicity was directly proportional to his fever, the temperature curve became the most important criterion of the value of treatment. Temperatures became normal as early as the twelfth day and as late as the forty-fifth day of illness. Since there is such a long period of time during which fever can subside spontaneously, either by lysis over a period of a week or moderately abruptly within 48 hours, it is obvious that attributing favorable results to any form of treatment without the use of a large number of controls is fallacious.

There are many pitfalls to be encountered in attempting to evaluate the efficacy of treatment in typhoid fever. In view of the fact that all of our patients except one were in the same age group, and same state of nutrition, and were infected by the same strain of E. typhi, the variables of age, nutrition, and strain of infecting organism were absent. In addition, four fifths of the patients entered the hospital in approximately the same stage (between the fifth and fourteenth days) of the illness. Eight patients were treated with sulfaguanidine and 19 cases were treated with sulfathiazole. Six patients were given injections of human serum (150 cc. each) obtained from previously inoculated individuals. The remainder of the cases were treated symptomatically as controls.

The patients receiving sulfathiazole weighed between 80 and 100 lbs. They received 4 grams of the drug daily over a period of five days. They were chosen at random, and were no sicker than the controls. If, here and there, a patient treated with sulfathiazole were studied without regard to untreated cases, we might erroneously deduce that the drug had had a favorable effect on the patient. However, when time and time again the fever of control and of treated patients would abate spontaneously during similar phases of the illness, it became apparent that at a certain time during the course of the disease, the fever subsided and the patient felt well whether or not the drug had been used. A review of all the sulfathiazole-treated cases showed that the administration of sulfathiazole had no effect on fever or toxemia, on the occurrence of complications or relapses, or on mortality. One control and 1 sulfathiazole-treated patient died.

It would seem theoretically unsound to treat patients ill with a blood-stream infection by using a drug which is relatively unabsorbable. Eight patients received sulfaguanidine. The treatment of 7 of these was not under our control. The patients weighed between 90 and 110 lbs. Three received 2 grams of the drug daily for four, eight, and nine days respectively. One received 3.2 grams daily for six days; 2 received 4 grams daily for two and three days respectively; 1 received 8 grams daily for two days; 1 received 8 grams daily for eight days. We believe that most of these dosages were inadequate. The use of sulfaguanidine had no effect on the course of illness in any case in which it was given. The number of patients receiving the drug was too small to state whether or not it affected the mortality, relapse, or complication rate. None of this group of patients died or had relapses; one had an intestinal hemorrhage. It is possible that the use of sulfaguanidine during early convalescence will lessen the chance that a patient will become a convalescent carrier. Investigations along this line are being conducted. No undesirable effects were attributable to the use of either sulfonamide.

The injection of 150 cc. of pooled serum obtained from previously inoculated individuals was entirely ineffectual. The mouse protection potency of this serum is being determined at the present time. However, the result of this investigation is of academic interest only, for one cannot wait for the results of mouse protection tests before using serum from inoculated individuals. The donors of the serum had had an average of 3½ series of anti-typhoid inoculations. They had all received their last series of injections between two and five months prior to the withdrawal of serum. Therefore, it is reasonable to believe that this group of serum donors possessed as high a degree of immunity as could exist in any group of inoculated individuals.

Blood transfusions did not alter the course of the disease, but seemed to lessen the degree of toxemia for a period of about twenty-four hours. They are indicated when patients are anemic. Otherwise they are hardly worthwhile. Nonspecific measures of treatment included a high caloric, semi-soft diet, adequate liquids, and lukewarm sponge baths followed by alcohol sponges given to patients with fevers above 102 F. Cold packs or cold baths were not used.

SUMMARY AND CONCLUSIONS

1. Sixty cases of typhoid fever were observed, of which 58 were infected directly by food contaminated by a healthy carrier. There was 1 secondary case. The mortality rate was 3.3 per cent.

2. The symptoms were somewhat unusual in that diarrhea was present in half of the cases. As a rule, diarrhea was mild, consisting of three or four defecations per day.

3. Physical signs differed from those described as characteristic in that relative bradycardia and palpable spleen occurred infrequently. The temperature curve was septic rather than typhoidal in most of our cases.

4. A normal white blood count, rather than leukopenia, was characteristic of the cases in this

series, for only about 20 per cent of the patients had an initial leukopenia; about 10 per cent had an initial leukocytosis, and the remainder had normal white blood counts.

5. E. typhi should be sought in blood cultures as late as the third week of illness, for half of our positive blood cultures were obtained in the third week of illness.

6. A study of the available literature reveals that most studies of remedies used in typhoid fever are uncontrolled. A comparison of treated cases with the controls in this series leads to the conclusion that sulfathiazole, sulfaguanidine, and serum from previously inoculated individuals are valueless in the treatment of typhoid fever.

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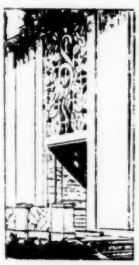

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EDITORIALS

TYPHOID FEVER EPIDEMIC

On February 26, 1942, 9 children in Washington Intermediate School in Honolulu developed symptoms of illness. On March 6th these were reported to the Board of Health as being suspicious of typhoid fever. Because of the obvious common denominator (eating in the school cafeteria) and the fact that the water supply has not for many years been responsible for a local case of typhoid fever, a carrier was suspected; the sick students were all isolated, specimens were obtained from all the food handlers in the cafeteria, and the cafeteria was closed.

On March 11th the carrier and one active case in a food handler were identified and isolated. It was learned that the carrier had first been employed in the cafeteria on February 16th. The following week the carrier's father was also found to be a carrier. By the end of the second week in March, 58 cases (in addition to the first 9) had been identified and isolated. Many of these were identified through visits by Board of Health and U. S. Army nurses; 1,869 such visits, to contacts with known cases and to absentees from school, were made—the equivalent of full-time duty for 2 nurses for a year. Out of 79 absentees investigated, 8 were discovered to have typhoid fever. In the fourth week of the epidemic (the third week of March) only 9 cases were reported; and in the fifth week only 2, the last case being reported on March 26th. Of the 74 of these cases connected with the school, 57 were hospitalized within fourteen days or less after the onset of their symptoms. Only 2 known secondary cases developed.

One girl who attended the school, and ate in the cafeteria, on only the 16th, 17th, 18th and 19th of February, was admitted to Queen's Hospital on March 18th in a moribund condition, and was found at autopsy on March 21st to have died of typhoid fever. This fixed within those limits—because she spent the period from February 19th to March 10th in the Detention Home—the date of her infection at least. Even more helpful was the discovery that the average absentee list of 200 pupils a day had included at least a few of the cases of typhoid fever on every day of the seven weeks' period in question, except one: February 17th. Every case of typhoid fever had been present on that day, and on no other. The carrier was known to have helped prepare sandwiches, but the exact food primarily responsible for the infection was not identifiable.

Five of the cases were isolated in St. Francis Hospital, 10 at the Queen's Hospital, and 63 at the U. S. Army Provisional Hospital No. 3, occupying a part of the Japanese Hospital. Elsewhere in this issue appears a preliminary report of studies made on this large group by Captain Hoagland and his staff. Of the total of 78 cases, 5 died.

Several features of this epidemic recommend themselves particularly to one's attention: Seldom, surely, have so many individuals of so nearly the same age (11 to 15, with 2 exceptions) and size ingested to nearly the same quantity of typhoid organisms from a single known source at so nearly the same time; and seldom, surely, have so many so nearly identical typhoid fever cases been studied at the same time by so unified a medical staff in a single hospital. Seldom, too, has a Board of Health investigator been able

to interrupt the source of infection in a typhoid epidemic on the day the first cases were reported (for the cafeteria was closed over the week-end) or to identify the carrier responsible for the epidemic within 5 days after the first cases were reported. Such an accomplishment means but one thing: prompt action and hard, painstaking work by competent men and women in the employ of, or assisting, the Bureau of Communicable Diseases of our Territorial Board of Health. Thanks to them, we can discuss this epidemic as an interesting and instructive epidemiologic and clinical study instead of a catastrophe.

H. L. A. JR.

VACCINATION: WHOLESALE

My dear Brennecke: I have had your letter of March 31st in which you ask the simple question, "Will you please tell me what the accepted intracutanous typhoid dose is?" I made some pencilled notes for my answer, but before I could write, the vaccine "blitz" hit us in the midriff. The people had been offered, by the military governor, a three weeks' delay during which private physicians might officially vaccinate them before vaccination became compulsory, and free, at the first aid stations. The members of the Honolulu Medical Society had conceded a reduction of their fee schedule to a dollar a poke each, for typhoid and smallpox, a total of four dollars, the Board of Health supplying both vaccines gratis. This certainly provided an opportunity to test "state medicine" beyond the wildest dreams that Parran ever had; we anticipated that only the idle rich would patronize us, while the great middle class would go for the free vaccine at the aid stations.

However, we missed the boat again, as we did before December the 7th when we said it couldn't happen here. For three weeks we squirted vaccine all day and shuffled vaccination registration cards all night. It was a terrible nightmare, but it proved that the people were not yet ready for state medicine; many people, some with families of six or seven who obviously could ill afford the fee, nevertheless stood there patiently in line—as Dr. Beck of your own island said, "All humanity seems reduced to one long straight line." We Americans here in Hawaii have been pretty well regimented by now, far more peacefully than I had anticipated, and we stand in a slowly moving line for gasoline, beefsteak, liquor permits, fingerprints, gas masks and all that quite cheerfully, but most of us still demand the right to choose our own doctor, even if we have to pay for it.

So that's the reason I didn't get around to writing you until now, when it is probably too late. You probably have learned from experience—as we did—some of the lessons of wholesale civilian vaccination.

So back to your question—"What's the accepted intradermal typhoid dose." What do you mean, "accepted?" Accepted by whom?

The Army officially recognizes only one means of typhoid vaccination: 3 subcutaneous doses of ½ cc., 1 cc., and 1 cc. respectively. The interval between doses may not be shorter than 5 days nor longer than 10 days. This applies to the initial vaccination, as well as repeated vaccinations.

The Army, here, however, recognizes the certificates of the local Board of Health.

The Board of Health officially simply does not ask physicians to designate the route used in giving typhoid vaccine. Unofficially it accepts 3 intradermal doses of vaccine, spaced as above for time, of 0.1 cc. each. For a while they advocated the first dose as 0.1 cc., the second dose as 0.15 cc. and the third dose as 0.2 cc. 0.2 cc. is rather apt to produce local necrobiosis—very pretty word, but not so pretty on the patient's arm—so we reverted to the 0.1 cc. dosage for each of the 3. This applies to the initial, as well as to the revaccination.

The Navy, so I am informed, recognizes 1 dose of 0.1 cc. intradermally as a "booster" dose, in previously vaccinated people; for initial vaccination it recognizes the subcutaneous army method as well as the Board of Health method of three intradermal doses of 0.1 cc. each.

What the Marine corps does, I do not know. But you see that we over here still have at least relative unanimity of opinion. We are agreed that vaccination should be done!

Aloha,

FENNEL.

PROGRESS IN INTERNAL MEDICINE

SHOCK

The syndrome of shock is of importance to all physicians at all times, and the present heightened interest in traumatic shock is likely to continue for an indefinite period. The surgeon and the internist see, in this disorder, similar clinical pictures occurring under quite dissimilar circumstances. Until recently a number of modifying terms have been applied to it, such as "surgical", "traumatic", "wound", "toxemic" and "medical"; and a still greater number of theories have been presented to explain the occurrence of one or another of these forms of shock. A recent article by V. H. Moon (The Vascular and Cellular Dynamics of Shock, *Am. J. Med. Sci.* 203:1 [Jan.] 1942) brings the whole clinical picture of shock, its variable etiology, its physiological explanation, and its accompanying pathological changes, into clear relief. It is well worth the study of every practitioner of medicine.

Etiology

Dr. Moon's thesis is that shock is circulatory failure of capillary origin. It may occur after severe traumatic injury, prolonged or complicated surgical procedures, or extensive burns of the skin. It occurs also incidental to abdominal emergencies such as strangulation, perforation, intestinal infarction, or pancreatitis, and is seen in intoxications, infections of unusual severity, serum disease, and in acute poisoning of diverse kinds. The same syndrome may be produced experimentally by trauma, intestinal manipulation, burns, and by tissue abuse in animals, or by injection of various capillary poisons, such as alkaloids, diphtheria toxin, tuberculin and other bacterial products, foreign proteins and products of protein cleavage, histamine, bile and cholic salts, venoms, and many drugs, chemicals and poisons.

Pathogenesis

These conditions and substances have one common effect, that of producing relaxation of capillaries and venules and increased permeability of capillary endothelium. There is caused thereby leakage of the plasma through the capillary wall, lowering the total blood volume. Yet, at the same time, there is increased volume capacity of the vascular bed due to the dilatation of venules and capillaries. Thus there occurs a disparity between volume of blood and volume capacity of the vascular bed, which, if marked, impairs the systemic circulation. There is reduced delivery of oxygen to tissues and anoxemia results. This tissue anoxemia further increases capillary atony. Thus is set up a vicious circle of progressive pathological changes.

Activation of the sympatho-adrenal system compensates for a time by stimulation of myocardium, mobilization of glucose from liver, contraction of peripheral arteries and discharge of red blood cells from the spleen and other reservoirs. If compensation is inadequate, there is a decline in blood pressure, the circulatory deficiency becomes manifest clinically and parenchymatous organs undergo morbid changes which may be irreparable.

Pathology

The pathological changes described as characteristic by the author are: dilatation and engorgement of capillaries and venules of viscera (liver, kidneys, gastrointestinal mucosae, lungs, and of the serosae), petechial hemorrhages in these tissues, in the meninges, and occasionally in the brain; edema of the soft tissues, and effusions in the serous cavities if death is somewhat delayed; and acute granular degeneration, often with focal necrosis, in parenchymatous organs.

Pathologic Physiology: Experimental Shock

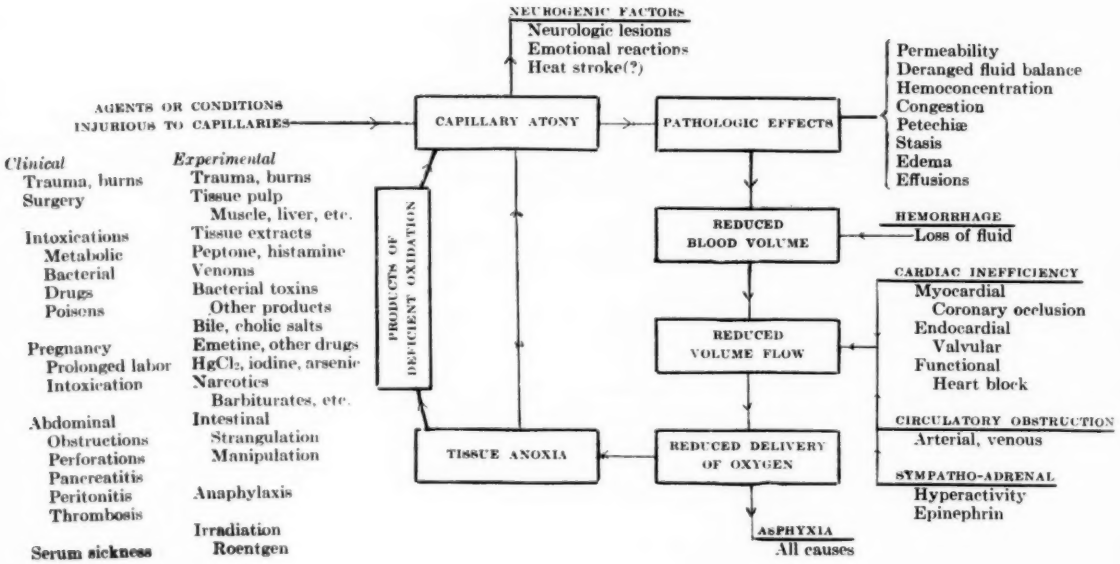
Dr. Moon discusses the confusion existing in regard to experimental shock—due not only to attempts to differentiate traumatic and toxic shock, but also to inadequate differentiation between the effects of hemorrhage (and of anesthesia in experimental animals) and shock. The similarities between shock and the effects of hemorrhage include sympatho-adrenal manifestations such as stimulation of myocardium, vasoconstriction, cold extremities, low temperature, increased blood sugar, dilated pupils, and perspiration; they also manifest, in common, decreased alkaline reserve, decreased serum protein, increased respiratory rate, thirst, decline of blood pressure, and finally death due to inadequate circulatory function.

Shock, however, manifests the following physiological changes which do *not* occur in association with hemorrhage: increased flow of lymph and tissue fluid, disturbed fluid balance, progressive pulmonary edema, impaired absorption from gastrointestinal tract and from tissue, vomiting, and frequently diarrhea. The most important differences occur in the blood: whereas hemoglobin, red blood cells, and certain salts are *decreased* in hemorrhage, in shock they are *increased*. Hemoconcentration is, then, the most important differential point.

Clinical Shock

The clinical picture of shock may be complicated by the existence of other factors which aggravate the condition; neurogenic factors, hemorrhage, myocardial inefficiency, or overactivity of the sympatho-adrenal system. The interrelationship of these factors in the pathologic physiology of shock is clearly presented in the accompanying diagram, taken from the paper.

THE RELATIONSHIP OF VARIOUS FACTORS IN THE PATHOLOGIC PHYSIOLOGY OF SHOCK. THE RECIPROCAL EFFECTS OF *Capillary Atony and Tissue Anoxia* GIVE THIS MECHANISM THE SELF-PERPETUATING QUALITY OF A VICIOUS CIRCLE.



Dr. Moon's definition of shock is an excellent one to memorize — *"Shock is a form of circulatory failure, not central but peripheral in origin, characterized by decreased blood volume, decreased volume flow and hemoconcentration."*

S. E. DOOLITTLE, M.D.

RECENT ADVANCES IN SURGERY

AN ORTHOPEDIST GROWS UP, or,

The bowlegs and pigeon toes and the knock-knees and pronated feet of childhood are problems in physiology, not pathology.

One hot California summer day, nearly half a century ago, two small boys stood in the dust under a peach tree munching peaches and arguing about their feet. One of them had observed that their footprints were unlike. One boy's looked like misshapen pancakes with five little drippings on one end. The other's had five toe marks, a ball, a heel, and a slender connection along the outer side. Each contended his feet were the right kind; each asserted that his feet gave him no trouble.

The argument unsettled, each grew his untreated way to manhood. The boy with the pancake feet became a medical student. On a vacation swim he consciously saw for the first time in a score of years that his footprints had now become like his boyhood chum's.

As an interne he saw many rachitic legs—bowed, knocked, and twisted—whose metaphyseal areas looked like ragged cups.

As a nursery school examiner at the University of California in Los Angeles he saw children from superior homes. All of them were knock-kneed and flat-footed. He observed that usually the left knee was more knocked than the right, save in a left-handed child.

A neighbor's toddler was terribly bow-legged and pigeon-toed. He followed the masters in advising bendings and twists, but the family was shiftless and did nothing—and a year later the legs were straight.

A small son crept into the doctor's home. He too had pancake feet and terrible knock-knees. The pediatrician stormed at him because the legs were such a terrible advertisement for a "straight-child" doctor. But the doctor had begun to believe that perhaps the condition was physiological, not pathological. He remembered himself, and refused to do anything. As the boy grew towards puberty the legs became straight and the feet developed their arches.

He had observed that the knees of these children were loose and literally knocked as they wobbled back and forth. In the knock-knees the looseness was on the inner side, in the bowlegs it was on the outer side; he presumed it was capsular looseness.

Then he observed that by *e*verting the heels of the knock-kneed the knocking was decreased, while by forcibly *in*verting the heels of the bow-legged, the bowed legs were made straight. Only the gastrocnemius crosses both these joints. So, then, the deformities were caused not by relaxed ligaments but by a lack of muscle tone in one or the other of the heads of the gastrocnemius.

Muscle tone is, physiologically speaking, postural tone. It is an acquired characteristic, as we all know from watching a child develop. It now appears that it may not appear in all parts of a several-headed muscle simultaneously.

If the hypothesis we have developed is true, it follows that if a bow-leg is corrected by osteotomy when the lesion is not bony but physiological, then, as the physiology takes up its normal place, the deformities should be *reversed* and be *bony* in character. Such actually occurs.

To this picture (and apart from rickets) I have seen certain exceptions. Three pre-adolescent boys have straight legs but markedly everted heels and total absence of the so-called arch. X-rays of the weight-bearing feet show that the axis of the os calcis parallels the floor, the talus points nearly straight down and the scaphoid is displaced dorsally. If one turns the heel into its normal position the great toe and first metatarsal lie completely away from the floor and the fifth metatarsal parallels the floor. In other words, these feet are essentially not pronated feet but supinated feet.

Then there is the sexual difference. A bow-legged woman is a freak, for most women are knock-kneed. Conversely, most boys and men are slightly bow-legged.

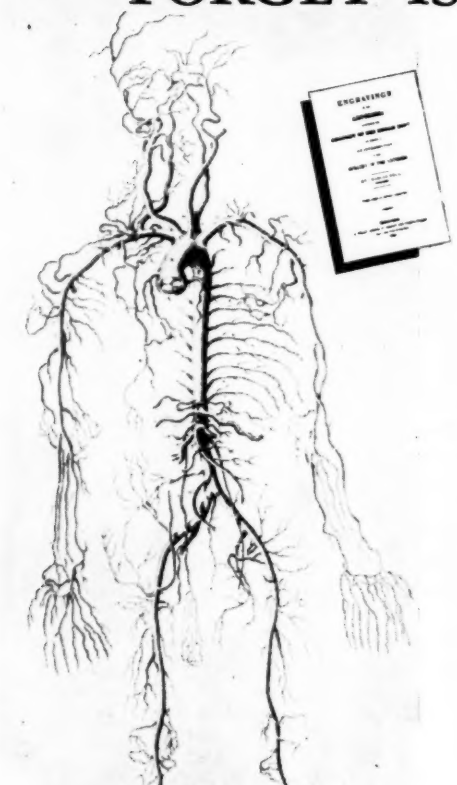
In short, natural, normal babies tend to be bow-legged and pigeon-toed, natural pre-school children tend to be knock-kneed and flat-footed, and natural pre-adolescent children tend to be straight-legged and normal-footed. Adult women normally tend to be slightly knock-kneed and normal men slightly bow-legged.

If, then, life is as I have observed it, corrective heels, "orange peel" pads, plates and surgical interference are utterly unnecessary. Orthopedists and doctors generally should let nature do her work.

STEELE F. STEWART, M.D.

vasoconstrictor *hemostatic*
circulatory stimulant *resuscitant*

THE HORMONE THAT DOCTORS FORGET IS A HORMONE



Reproduced from the 1833 edition of "Anatomy of the Human Body" as drawn by the master artist-anatomist and surgeon, Sir Charles Bell. He depicts the "Scheme of the Arterial System."

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CLINICO-PATHOLOGIC COMMENT

SULFONAMIDE DETERMINATIONS: A POTENTIAL SOURCE OF ERROR

Prompted by an observation made by Dr. Palma[1], we performed the following little experiment. To some pooled human serum, we added sulfadiazine to an approximate concentration of 2.5 mgm. per cent. Of this, four 2 cc. samples were removed; one was untreated, to one 1 drop of a 1% solution of Novocaine was added; to one, 2 drops were added; to one 5 drops were added. These samples were then tested in the usual fashion, as for blood concentration. They gave, respectively, the following readings in mgms. per 100 cc.: 2.5; 15.0; 26.5; 55.0. The lesson and the precautions to be taken are obvious.

SMALLPOX VACCINATIONS

We have learned some lessons in this vaccine "blitz" episode. As to smallpox: the batch of vaccine we had down here was certainly potent, which speaks well for shipping facilities. Smallpox vaccine deteriorates rapidly at higher temperatures, and particularly at fluctuating temperatures. It should be kept under 5 C, and can't be kept too cold; in other words, freezing it is probably the best method of preservation. Each capillary tube is supposed to have enough for 1 vaccination; but we got from 2 to 6 out of every one. It takes only the tiniest drop of a potent vaccine to get a take. A needle point pressed through the epidermis within the drop of vaccine is sufficient. It is rather important not to get multiple needle-penetrations farther apart than one millimeter: if these microscopic *pukas** are farther apart, a pretty sore arm may result. Secondary infections were quite rare. It was interesting to see how the immune reactions the accelerated reactions, and the primary reactions were distributed. Practically all people under 20 had immune reactions; those people between 20 and 40 years of age could be divided into the local, or *kamaainas*, and the *malihinis*, newcomers to the Island. The local people almost all had been vaccinated upon entry into school, and presented either immune or accelerated reactions, but many of the *malihinis* came from California, where they had not placed enough emphasis upon vaccination on entry into schools, because of Christian Science and other cults; so that in this group of young adults there were many primary "takes". It was in this group that I anticipated some cases of post-vaccinal encephalitis, but happily my fears were not justified. In the adults over 45 we had almost 95% primary takes, except in that group of elderly Japanese more recently vaccinated upon their arrival in Hawaii.

Several cases that had had smallpox many years ago and bore unmistakeable scars showed primary takes, which means that we must somewhat change our ideas on the duration of immunity following smallpox. It certainly is not for life, and, by inference, we probably must also change our attitude toward immunity in typhoid and other diseases.

In the beginning we were somewhat hazy on what the contraindications for smallpox vaccination should be besides the very obvious things such as acute illness. A general dermatitis, eczema for example, should be considered a rigid contraindication. Not only should these individuals, particularly if they are children, be excused from smallpox vaccination, but so should all of their siblings, lest there be an accidental vaccination of these children in the home. However, any skin abnormality, with a break in the skin, is at least a temporary contraindication for smallpox vaccination.

TYPHOID VACCINATIONS

It really is a pity that there were so many methods of typhoid inoculation used; some day when a mass study is made of the results there will be a hodge-podge because the method of vaccination in an individual case is unknown. Does intradermal vaccination really protect? This is a question which time alone will answer.

In marked contrast are my two experiences with typhoid vaccination: my first one in Round I of the World War, and my second one in this Round II of the World War. In the first one we

[1] Palma, J., and Smallwood, W. C.: The Sulfonamides. Proc. Staff. Meet., The Clinic 8: 23 (May) 1942.

* *pukas*: Hawaiian for holes.

used the vaccine made from the Rawlings strain of typhoid bacillus (which I suspect never was a real typhoid bacillus) which Colonel F. F. Russell had inherited from the British. Its antigenic value probably was rather low. However, subcutaneous vaccination in the Boer War and in our own 1917-1918 episode proved it of value. The Mexican Border incident added para A and para B to the vaccine, and also a lot of toxicity. In the beginning of that first episode straight typhoid vaccine was used. Subsequently para A and para B were alternated with the straight typhoid. Subsequent to that, the typhoids para A and para B were combined to make the triple typhoid vaccine, and it was administered in .5 cc., 1 cc. and 1 cc. doses subcutaneously. Soldiers and their vaccination registers were forever being separated, and that seriously delayed embarcation. There was then developed, and adopted, a lipo-vaccine, with the bacterial content of the three doses of saline vaccine—and even more—dried, pulverized and suspended in cottonseed oil. The soldier was given the one shot and sent on his way rejoicing (?). This method was discarded after the War because the sterility of the oil could not be controlled. A number of years later the Army used only typhoid vaccine, having discarded the A and B. When the Army Medical Corps anticipated service in foreign countries, the A and B were again used.

In the meanwhile, however, a new strain of typhoid bacillus, known as the Boxill strain, had been discovered. It has unusually high antigenic value. Of the para A and B cultures I know less. In the old days, when we were testing out in the laboratory the efficacy of the Rawlings strain for typhoid, and the A and B's that were used at that time, we had rather crude methods of examination, but we used all that were available. The animals and men that were under experiment were tested by agglutination, complement fixation and opsonic index. Animals were used only to control the toxicity of the vaccine. In our agglutination reaction we made an effort to standardize the agglutinable culture, but we had never heard of O agglutinins, or H agglutinins, or O antigens or H antigens, and we certainly had not dreamed of Vi antigens. The agglutination reaction, in measuring the immunity produced in an individual is very much like tickling a flea in the ribs with a telegraph pole: rather crude. This new vaccine strain, the Boxill strain, apparently has a large amount of somatic and flagellar agglutinins, that is, O and H; and in addition to that, because the vaccine seed is frequently put through animals, it has a high Vi antigen. That probably is the most important part of the vaccine strain. I have made triple typhoid vaccine here with this Boxill strain, and in testing out the toxicity of my completed vaccine in the rabbit, have found the rabbit to respond with tremendously high titers to subcutaneous inoculation and to almost unbelievable titers after intravenous inoculations. All of this leads me to believe that the use of the present vaccine is going to be highly efficacious, not only because of the high antigenic value of the organism used, but also because I have always been convinced that the histiocytic system is the producer of antibodies, and that the cutaneous tissues, being loaded with histiocytes, are the ideal place to put the vaccine. Personally I think that all vaccines are best administered intradermally. We are getting away from the thought of total bacterial substance, diffused in the whole body, and leaning toward the thought of concentrated antigen in contact with the maximum number of cells of maximum antibody producing capacity.

Today our laboratory experiments, measuring immunity produced, use fined tools for the work. With the advent of this highly virulent strain of typhoid bacillus, plus the use of mucin to make the intraperitoneal inoculations in mice, we have a protection experiment that is probably a highly accurate measure of immunity. A number of recent publications have pretty clearly established the fact that intradermal vaccination with moderate doses produces quite as much immunity as the more toxic subcutaneous vaccinations. And these reports further indicate that the time factor between the doses is of relatively little importance. In other words, 5 days', 10 days' or even 30 days' lapse between doses makes no appreciable difference in the final outcome of immunity. I am very sanguine about the ultimate outcome of this widespread intradermal inoculation in Hawaii.

CULTURES IN THE FACE OF SULFA COMPOUNDS

With the widespread, almost universal, use of the sulfa drugs, the bacteriostatic properties of these drugs must most seriously be taken into consideration in culturing blood or tissue fluids of patients receiving them. Janeway advocated the addition of *p*-amino-benzoic acid to the culture media in such cases. We have routinely been adding this chemical to all our culture media in a concentration of 7 mgm. per cent, and we get

the impression that it greatly enhances bacterial growth, even where sulfa drugs are not concerned. This we have noted, both with Brewer's medium and with the new transparent chocolate agar, mentioned in a previous issue. More recently it has been said that procaine in similar concentrations may be substituted. That seems quite logical, since *p*-amino-benzoic acid forms the basis of various local anesthetics, e.g.; novoaine and stovaine. We are so satisfied with *p*-amino-benzoic acid, that we shall not experiment with procaine. We have been using the Eastman P14 (Practical) form of this chemical, and we suspect that possibly some of the allied impurities it may contain also act as an accelerator of bacterial growth. So we shall not change to procaine unless we run out of the acid—which is unlikely, since 200 grams go a long way when only 7 mgm. per cent is desired.

This may be analogous to Sabouraud's medium. It is generally felt by mycologists that for preparing Sabouraud's maltose agar, pure maltose and American peptones are not a satisfactory substitute for Chassaing's peptone and Chanut's crude maltose, very likely because of impurities present in the latter. Our own experience tends to confirm their opinion.

The use of *p*-amino-benzoic acid in culturing organisms in the presence of sulfa drugs has opened up some new avenues of investigating the mode of action of these drugs. It is held that bacteria must have or make *p*-amino-benzoic acid for growth, and that the sulfa drugs inhibit this capacity for manufacturing the acid. No doubt much interesting work will be published on this subject in the near future.

TRANSPARENT CHOCOLATE AGAR

We have tried the new transparent chocolate agar, and found it good beyond expectations, in growing and identifying gonococci. We make it in 200 cc. lots, as follows:

Make up 200 cc. Difco Proteose #3 Agar, to which is added 0.2 grams of soluble starch and 15 mgm. of *p*-amino-benzoic acid. This is placed in a 250 cc. centrifuge bottle and autoclaved. Thereafter it is placed in the 56 C water bath. When it has cooled to that temperature, 10 cc. of citrated human blood (sterile) is added. The contents are mixed and the bottle is brought to 85 C in a water bath, and held there about eight to ten minutes. It is then centrifuged at about 2000 RPM for about five minutes, when the clear, supernatant medium is decanted into the sterile dispenser. We dispense into sterile flat-sided "Ovals"—2-ounce medicine bottles. The bakelite screw caps have a 5 mm. perforation, and the paper inner liner has been replaced by a rubber one cut from inner tubing, so that, with a hypo needle, the air may be withdrawn and replaced by a mixture of 10% CO_2 in air.

This new medium gives excellent visibility of the "dewdrop" colonies, and we have the impression that it, with the addition of *p*-amino-benzoic acid, gives a much stronger oxidase reaction when the dye, *p*-amino-dimethyl-aniline monohydrochloride, is added.

Culturing and identifying gonococci now seems to be a cinch. It is said to be equally useful for meningococcus; we hope we may not have opportunity to try it.

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MEDICAL SUPPLIES

Discussion by Capt. Paul Nixon, Controller of Civilian Medical Supplies, Hawaiian Medical Depot, Fort Shafter, at a meeting of the Honolulu County Medical Society, Thursday morning, April 16, 1942.

We knew some time prior to the Blitz that, should such a thing occur, it would mean the immediate freezing of all civilian medical supplies under the control of our office.

Our first job was to set up an office system that would work. It was no simple job to select and to train employees who had no previous knowledge of medical supplies. This has been done and the office functions well. We do not have a large amount of medical supplies in general and, if we are cut off from supplies on the mainland, the supplies here will have to be stretched as far as possible. As a whole, the medical supply situation is not bad. We can get along for a long time—but only by controlling such supplies as are available and by everyone keeping purchases down to actual needs.

We have a control inventory, based on stocks reported by all the wholesalers in town, covering some 3,000 to 5,000 items. This is accurate within three days. We know where every item is; how short we are getting; when to limit sales and when not to.

There never has been a time since December 7th when you doctors or your patients could not buy anything in Honolulu that could be bought before. We control the amount but we never have denied anyone in Honolulu any particular item of medical supply that was necessary.

Ordering

There never has been issued a "blanket O.K." to anyone for the procurement of medical supplies. A routine has been established as follows: You place your order with the wholesaler; he makes out an order in triplicate and sends it to our office. It is processed through our control section, edited, and checked out; then goes back to the dealer the next morning. It takes twenty-four hours to go through our office. In cases of emergency, all you need do is to get a release from our office over the telephone. If your wholesaler does not have a given item, we suggest that you call our office. We will tell you where any item is available in town. The office is open twenty-four hours a day.

(The following remarks are replies to specific questions raised by the members.)

Codeines There is no objection to buying a monthly supply instead of placing repeated small orders. We see no objection to your keeping a reasonable stock in your offices if proper storage space is available. Unless an order for any item is obviously excessive, our office will not question it and, even then, if you can give us an acceptable explanation, it will be given consideration. It must be realized, however, that if we allow one person to buy all our supply, the rest must do without.

Syringes: These have been frozen because of the demand for the immunization program. A few shipments have been received and, if not already released, they will be in the near future. Just because an item is frozen is no reason why you cannot have it if you need it and tell us about it.

Sheets: These are frozen, but I hope they will be released soon. Again, if you have a definite need for them and nothing else will serve the purpose, we will give them to you.

Bandages and Cotton: There should be no difficulty in getting these at retail stores. All we ask of retailers is that they not overstock. We do not control the retail stores; we control the wholesalers. A good stock is available.

Rubber Goods: The O.P.M. restricted the use of rubber but they probably will never cut down on it to the point that an actual hardship will exist in necessary medical supplies. However, these items must be used sparingly and taken good care of. A substitute for hot water bottles is being worked on by a local can company. (They now state they cannot manufacture a satisfactory substitute locally—Ed.)

Substitutes for Certain Products, i.e., Lysol, etc.: We do not plan on issuing bulletins on what is and what is not available. If you want a substitute, phone our office to learn if and where the item

you desire is available. That goes also for drugs present in limited quantities. Our stock depends solely upon transportation from the mainland so we must consider all stocks more or less limited.

Rubbing Alcohol is not frozen. This item is available locally. Alcohol is manufactured in Honolulu that is perfectly satisfactory for everything except laboratory work. We are approving priorities on grain alcohol only.

Grape Juice: This item comes under the food administration and I do not know what, if any, restrictions have been placed on it.

Vitamins: Our stock of polyvitamins is rather limited in the larger sizes. However, sufficiently large stocks have been cleared and are on their way down. The smaller sizes are still available in fairly large amounts.

Sulfa Drugs: We have restricted the sale of sulfa drugs to and by retailers. They are easier to control while in the wholesalers' hands.

Poisons: All poisons require a specific release except when you write a prescription containing poison. We ask you not to write prescriptions for Lysol, cyanide, and bichloride except where absolute necessary. Bichloride, of mercury we will not release to anyone except for use under a doctor's supervision. I think the poison situation is clearing up a little.

Priorities: We edit the wholesalers' orders to the mainland and designate the priority. We have divided medical supplies into three classes for the purpose of determining priorities: critical, essential, and secondary items. Critical items are those which are getting scarce, but an item that is critical today may not be critical tomorrow depending upon how much comes in. We are trying to build up certain stocks and I think we are getting along well.

There is absolutely no reason for all the fear and trembling which exists about buying medical supplies. People can buy anything they could ever buy if the retailer or wholesaler has it. If there is an emergency we will release such amount of a given item as may be necessary. If it is a poison the purchaser has to have a specific release; if it is a narcotic the purchaser must have a doctor's prescription in duplicate.

FOOD NEWS IN HAWAII

From all indications the recent shortages of butter and meat are merely an indication of what is to come. The Army decides what shall be shipped and where it is going, but the Navy decides when it shall be shipped, depending on clear lanes. In consequence ships leave unloaded or stand by waiting until perishables are spoiled. Under the circumstances a certain amount of this is inevitable.

More and more of the necessary foods will be imported by the Federal Surplus Commodities Corporation, a government organization which is better able to deal with the Army and Navy for shipping space than can the local merchants.

The F.S.C.C. distributes its buying among all producers, and unfamiliar brands will consequently appear on the market. Dehydrated foods will appear in increasing numbers. Ready prepared cereals will almost certainly disappear from the market because of their shipping bulk. Whole wheat cereal or rolled oats will be available.

In the absence of certain foods and specific brands of foods, it is well for the physician to be prepared to recommend substitutes. Physicians have much more influence on nutrition than many of them realize. Specific foods mentioned by them are used by patients to the exclusion of other brands which may be just as satisfactory. This is particularly true of evaporated milks. Many doctors automatically say "Carnation" as a synonym for all brands of evaporated milk, and patients will use that brand exclusively.

Fruit Juices

Another instance is our habitual use of "orange juice" for infants and invalids. Many other fruit juices are as satisfactory. Special emphasis is needed on this point just now. Oranges are being brought in because of popular demand, yet shipping conditions are such that from 30% to 50% of each shipment is spoiled when it arrives. This space might better be used to ship foods for which no local substitutes exist. Locally produced papaya, guava, pineapple, mango and other fruits are perfectly satisfactory sources of ascorbic acid.

A recent study by Besy and White, of Harvard Medical School, emphasizes the daily need of school children for the amount of ascorbic acid found in 3 ounces of citrus or tomato juice (calculated at 15 mgm. per ounce). Blood plasma levels were maintained on that intake and fell below normal when the citrus juice was omitted.

Pineapple is popularly considered an acid fruit. Large amounts eaten at one time may have an irritating effect on the mouth but most people can take normal amounts regularly to advantage. Bowes and Church report a 6.8 excess of base for fresh pineapple and 2.9 excess of base for canned pineapple.

A concentrated orange juice, frozen and canned, is now being used at Queen's Hospital, and is quite satisfactory.

The University of Hawaii Agricultural Extension Service is giving home bottling demonstrations to interest housewives in conserving as much as possible of our guava crop. One suggestion made was that a neighborhood or the parents in a school hire a truck to go out and pick the guavas for the group, thus saving gasoline. It is well to remind ourselves at this time that the watery extract of guavas contains 100 mgm. percent of ascorbic acid. Orange juice ranges from 26 to 45 mgm. percent. The public should be urged to use all available guavas.

Butter and Substitutes

Margarine is ordinarily considered the best low cost substitute for butter. However, it is possible that the F.S.C.C. will not import it at all, leaving it to the regular agent. This product is so tied up with regulations designed to protect the dairy industry that importation is difficult. If coloring matter is added the tax would make the price exceed that of butter.

The University Extension Service has developed a method for home manufacture of palm butter from coconuts. Ten coconuts make a pound of butter. Color and vitamin A are added by means of a fatty extract of the lipstick plant.

Vegetables

Canned turnip greens are appearing in the markets. The price is lower than that of spinach and the food value is greater, especially in calcium, iron, vitamin A and vitamin C.

Fish

There are now in many markets tall cans and flat oval cans of grilled pilchards in spiced tomato sauce. This is a fish related to the sardine and Booth labels the cans pilchards or sardines interchangeably. Pilchards is the name preferred in England and the stock we have here was meant for Lend-Lease shipment to England. The price is 15 cents or 2 for 25 cents and the flavor is quite good. At that price this is one of the cheapest sources of protein. They may be used in salads, sandwiches or in casserole dishes mixed with potatoes, other vegetables or cereals, or simply broiled.

Sweets

Casual observation would indicate an increased desire for sweets since December 7th. Candy is almost unavailable and the shelves are rapidly being depleted of jams and jellies. Children now are buying two or more lunches, to the embarrassment of the cafeterias, which were not prepared. Apparently their extra nickels now go for hot food in place of candy which is no longer available at the corner store.

The increased home production of jellies, jams and preserves would seem a wise move which physicians might suggest to patients. Guava jelly retains much of the vitamin C of the watery extract used in its preparation. The University Extension Service reported it as containing 60 mgm. percent of ascorbic acid.

Any of the marmalades are more valuable food adjuncts than jellies or syrups, and may be made from any of the local citrus fruits. Hawaiian oranges, pomelo, grapefruit, rough skinned lemons, limes or Chinese oranges might all be used.

Milk

There seems to be a tendency to shift from evaporated milk to fresh milk in infant formulas. The price of fresh milk has risen and a further rise has been announced. Evaporated milk has so far not risen in price proportionately. For many low income families price is a definite factor tending toward reduced use of milk. A large stock of evaporated milk is on hand; the brands are unfamiliar, but the quality of all is good. In view of comparative bulk, it is possible that further curtailment of shipping will result in reduction of cattle feed rather than of evaporated milk. If evacuation becomes a necessity, supplies of fresh milk will, at least temporarily, be completely cut off. Lack of adequate refrigeration at many evacuation points also needs consideration. In these circumstances, evaporated milk would be more convenient to transport and store, as well as safer for the infant.

MARJORY ABEL
SPECIALIST IN NUTRITION,
BOARD OF HEALTH

PROGRESS REPORT FROM OFFICE OF CIVILIAN DEFENSE, HONOLULU

Island of Molokai

No actual work has been started yet but plans are made to splinter-proof and expand the 3 existing hospitals. The capacity of Shingle Memorial Hospital is to be expanded, and the adjoining homes, turned over by the Hawaiian Homes Commission, are to be remodeled and used for hospital and storage purposes. The Libby McNeil & Libby Hospital at Maunaloa can be expanded and the club house equipped to take the overflow, or to be used for evacuated patients. Supplies are being put in for that purpose. The County Hospital at Kalapue, which has only 7 or 8 beds, will have some remodeling done to expand the facilities for surgery. The adjoining school and a nearby cottage will be transformed into ward space for this hospital.

All of these plans are tentative and are awaiting clearance with the Army authorities.

The C. M. Cooke Home at Puukolea has already been provided with provisional beds, kitchen equipment, etc., it is well situated, and with very little work can be turned into a hospital.

There are five first-aid stations planned for the islands and some supplies have already been distributed. The personnel is all volunteer and is already in process of training. Mrs. Cooke, the only qualified first-aid instructor on the island, has this in charge. They have ambulances, drivers and litter bearers. No nurses are available for these stations; there are only 7 nurses on the island and only 3 doctors. These will be required to man the hospitals in case of emergency.

Island of Hawaii

In Hilo they have set up 15 first-aid units of a highly mobile type, with a central casualty station and headquarters. Dr. Walter Loo of Hilo is in charge of the first-aid set-up, and there is one nurse in the central office. Each mobile unit is composed of two ambulances, attended by drivers and 5 litter bearers.

Throughout the island the plantation doctors are organizing similar mobile units. These are being furnished with supplies from the O.C.D.

No actual work has so far been done on the expansion of hospital facilities since no material is available for either remodeling or splinterproofing. Plans are under way, however, and will be undertaken when materials can be obtained.

Island of Kauai

Building of bomb shelters and splinterproofing is already well under way at the Mahelona Hospital and at Wilcox Memorial. The school building at Huleia is being remodeled and when completed will be a 150 bed hospital to serve the Lihue district. It is to be put into operation as soon as completed. The entire staff for this hospital will have to be recruited from outside the island.

The hospitals at Eleele and Waimea will have to be moved. The arrangements for this are still under discussion with the Army.

At Makaweli it is planned to construct an additional hospital, using surrounding camp buildings for ward space.

Kauai has 8 first-aid units, situated at Kilauea, Kapaa, Lihue, Koloa, Eleele, Makaweli, Waimea and Kekaha, with 4 sub-stations at Hanalei, Puhi, Kalaheo and Mana. These are fixed stations but organized to be readily mobile. They have makeshift ambulances, and all the force is volunteer, including ambulance drivers, litter bearers and first-aiders. There is a central administration office for the first-aid activities with a supply clerk, assistant clerk-stenographer and typist. There are only two nurses available for service for the entire first-aid set-up throughout the island.

Island of Oahu

Since the last report our activities have consisted principally of conducting the immunization campaign. The assistance rendered the Board of Health physicians and the first-aid station doctors and personnel by the medical officers and nurses of the Army was indispensable, and it is pleasant to record that either these people enjoyed the experience or they are consummate actors. At any rate their help was given not only cheerfully but enthusiastically.

In April, 39 Red Cross nurses arrived from the mainland under the supervision of Miss Margaret Tracy, and they immediately took up their duties in the O.C.D. hospitals, Sacred Hearts and Wahiawa. The writer never realized before how important the assistance of nurses could be in what might almost be called the construction of hospitals. These women did work that should have been done by scrub women and orderlies and did it as if they had been doing it all their lives. The preparation of the hospitals for the reception of patients was tremendously speeded up by their help. For short periods of time several of these

nurses were loaned to civilian hospitals in Honolulu to supply deficiencies in their nursing staffs.

Sacred Hearts Hospital began to accept patients on April 22nd and Wahiawa Hospital was ready to receive them on May 4th. Their capacity is still limited largely by lack of special facilities, orderlies and other help. A volunteer medical staff assigned to Sacred Hearts has been holding meetings in the hospital, studying the deficiencies and arrangements with a view to being able to go into action quickly when the need arises.

Owing to the crowded condition of Honolulu hospitals and the obvious need for a system of traffic control for these hospitals, the Military Governor issued an order setting up a military controller who will fix the capacity of all hospitals and in effect bring about the pooling of military and civilian hospital facilities to take care of any sudden need for their expansion.

GENERAL ORDER 101, SECTION VIII. ESTABLISHMENT OF CIVILIAN HOSPITAL CONTROL OFFICE.

1. A recent survey of the patient capacity of civilian hospitals on the Island of Oahu indicates that some hospitals are filled to capacity, that others are crowded, while still others have available facilities to accommodate additional patients. To alleviate this condition, it is necessary to provide a suitable regulation of the receiving of patients.

2. Major C. C. Gill, Medical Corps, is hereby appointed Civilian Hospital Control Officer, with authority to regulate and control the admission of patients to all civilian hospitals on the Island of Oahu. All persons and hospitals will comply with the regulations and orders of the Civilian Hospital Control Officer in this connection.

3. The Civilian Hospital Control Officer will immediately survey the patient capacity of all civilian hospitals on the Island of Oahu and will maintain a Civilian Hospital Control Office on a twenty-four hour basis for the purpose of expediting and assisting hospitals and doctors in securing adequate hospital patient facilities.

4. Until further notice, the Civilian Hospital Control Office will be located at Farrington High School, phone number 8564, or phone number 8531, Locals 490, 363, or 676.

By order of the Military Governor:

(Signed) THOMAS H. GREEN,
Colonel, J.A.G.D., Executive.

April 30, 1942

This system is not yet in force, but the details will be announced shortly. There was considerable opposition on the part of the medical profession to the idea of military compulsion, but it is believed that when it is clearly understood the system will be a help to them rather than a hindrance. At any rate a system of this sort is absolutely necessary during periods of enemy activity.

The plan will work something like this. Whenever a hospital has reached its predetermined capacity for safe operation no more patients will be admitted except for actual emergencies. Physicians applying for permission to admit patients will be told that the institution is full; they may then either contact another hospital to discover whether or not they have empty beds or they may call the office of the controller who will at all times be prepared to advise a physician which hospital has beds available. This control applies also to the military hospitals, but in these latter the treatment of patients will be the responsibility of the officers of the medical corps of the Army. Civilian physicians will practice in them only as guests. The department surgeon has assured us that every courtesy will be shown to civilian physicians who admit patients to military hospitals. The heads of the various hospitals in the city which have closed staffs have been asked to permit any physician in good standing to treat emergency patients in their hospitals "for the duration", and they have all consented.

The program of recruitment of mainland nurses for Honolulu's civilian hospitals, which is in the hands of Mrs. Akana, is progressing satisfactorily. Pending the arrival of the 31 nurses recruited on the mainland, who have been waiting there for transportation for the past six weeks, the department surgeon has detailed Army nurses to temporary duty in civilian hospitals to lighten the strain on reduced and overburdened staffs. A program of training nurses' aides is also well under way, some of them having already gone to duty in the hospitals.

The medical, surgical and hospital supplies for the Territory have begun to arrive from the mainland and are being distributed as quickly as possible.

Island of Maui

Like many other organizations, the Maui County Medical Society has been endeavoring to adapt itself to the war situation.

The first move in this direction was the election of the Chairman of the Committee of Health and Sanitation under the Civilian Defense Corps to the presidency of the Society. The Governing Committee of the Medical Society, consisting of the present officers and the last three presidents, was designated as the Civilian Defense Committee. By such an arrangement the Medical Society remained intact with its activities in complete unity with the Civilian Medical Defense program.

Two complete medical organizations have been established: the Non-Emergency Civilian Medical Defense and the Emergency Civilian Medical Defense, thus providing for all administration during an emergency to be under the direction of lay civilians, and allowing each physician to devote all his energy and attention to medical matters.

The outside islands are not as fortunate as Oahu from the standpoint of specialists in various fields of medicine. Nevertheless an attempt has been made to utilize as far as possible all the special medical talents available. Specific assignments for the supervision of the various specialties have been made. These will be included in the list of Maui Special Committees, appearing elsewhere in the JOURNAL.

Plans for an emergency medical set-up on Maui have been based upon the principle that casualties will be collected at the combat zones and, by means of connecting sub-stations, be transported to base hospitals considered safe either by virtue of their distance from the combat area or because they are materially protected. Combat areas cannot be outlined until an attack occurs, but various areas have been designated as probable combat zones. Location of vital installations, distribution of population and other factors have guided us in anticipating these probable zones.

Maui is geographically divided into three main districts by Mt. Haleakala and by the West Maui mountains. It is anticipated that these districts may need to act independently but an endeavor has been made to arrange for united action if this proves to be feasible. Various sections of our base hospitals have been set aside for special types of casualties. One of these units will be allocated to the care of burn cases, one for orthopedic cases, one for gas casualties, and so on.

Most of the hospitals located in areas designated as possible combat zones have already been evacuated save for out-patient dispensary needs. What facilities remain are being protected against bombs, shells, fires or other enemy action. First-aid stations, emergency hospital stations and base hopitals have been tied together by a network of ambulance service with accompanying personnel.

The Maui Medical Society is proud to state that, save for two or three necessary full-time employes in the administrative department of the Office of the Director of Civilian Defense, our organization is made up completely of volunteers. We have a trained organization of over 1,000 persons. This number does not include members of other defense units which have been correlated under various circumstances to augment our organization.

While our organization has been divided geographically into three different and distinct medical defense units, an endeavor has been made to render assistance to Molokai and Lanai. We have already sent to Molokai a representative who is fully informed of our entire program, as a good-will gesture, and—it is hoped—as the bearer of practical help.

Physicians of Maui County have not had the opportunity to experience action as have the physicians on the Island of Oahu. We hope that if future circumstances demand it, we will be prepared to handle the situation as commendably as it was handled by the Honolulu County Medical Society on December 7th.

We are gradually merging our civilian activities and facilities into the Army, Navy and air program, hoping that in the very near future a combined and unified organization will be available to military and civilian casualties alike.

COUNTY SOCIETY REPORTS

NEWLY ELECTED OFFICERS FOR THE YEAR 1942-1943

	Hawaii County	Honolulu County	Maui County	Kauai County
President	H. M. Patterson	Fred K. Lam	R. J. McArthur	A. Webster Boyden
Vice-President	R. Eklund	H. H. Walker	H. H. Seiler	S. R. Wallis
Secretary	E. Tompkins	N. M. Benyas F. J. Halford	Wm. Osmers	I. Umaki
Treasurer	Walter Loo	Rogers Lee Hill	Wm. Osmers	I. Umaki
Delegates	T. Keay E. Tompkins	N. M. Benyas O. Lee Schattenburg Fred K. Lam H. T. Rothwell J. E. Strode H. C. Gotshalk R. O. Brown G. C. Milnor	(To be appointed later)	D. R. Chisholm
Alternate Delegates	Wm. Bergin H. E. Crawford	Edmund Ing A. G. Schnack Maurice Gordon Arthur Davis R. M. Ogawa H. M. Johnson		Marvin Brennecke

HAWAII COUNTY MEDICAL SOCIETY

The 204th meeting of the Society was called to order on April 4th, 1942 at 2:00 p.m. at the Naniloa Hotel. Twenty-six members were present.

Dr. Yamanoha's application for membership was returned by the Censors and will be presented at the next meeting for a vote.

A communication from the Territorial Association was read regarding the Accident Life Insurance Plan, and a letter re the plantation health plan. The Society went on record as being against such a plantation health plan at this time due to present emergency conditions.

The Society went on record as favoring an annual meeting of the Territorial Association feeling that it would be of extreme value especially in these times as a great deal of information can be exchanged by men from the various islands and many new ideas gained by members of our Society.

The Society agreed to adopt a fee schedule of $1.00 per injection for typhoid and small pox immunization.

In discussing the letter received from Mr. McMorrow of the Board of Health re the five day treatment of syphilis, Dr. Phillips felt that compulsory hospitalization of infected venereal patients was not always advisable and at times led to failure to report the disease to the physician. He stated that the authorities were willing to modify this section of the rules and suggested that sulfa drugs be sold only on a physician's prescription to check self medication. It was pointed out in discussion that compulsory isolation was required only where treatment was delinquent or there was suspicion of spreading the disease. Infectious cases in outlying districts should be restricted to their districts until considered non-infectious by the attending physician. It was voted to request an order by the Military Governor to prohibit the sale of sulfa drugs except on prescription.

The election of officers took place with the following results:

President.....DR. H. M. PATTERSON
Vice-President.....DR. R. EKLUND
Secretary.....DR. E. TOMPKINS
Treasurer.....DR. WALTER LOO
Delegates.....DR. T. KEAY
DR. E. TOMPKINS
Alternate Delegates.....DR. WM. BERGIN
DR. H. E. CRAWFORD
Censor for 3 years.....DR. RICHARD ARIMIZU

Dr. Keay reported that the Civilian Defense Committee was no longer active and was disbanding, and that the minutes and materials in its possession will be turned over to the secretary for safekeeping.

A short discussion took place regarding the current epidemic of jaundice and some of the impending dangers were discussed by Dr. Patterson. It was voted that Dr. Haralson be advised that the society is very concerned about the epidemic and that it stands ready to take whatever steps he feels are advisable in combatting the future dangers.

This meeting was well attended and enjoyed by the majority of our members after partaking of a luncheon given by the retiring president, Dr. Bergin.

EDMUND TOMPKINS, M.D., reporting.

The 205th meeting of the Hawaii County Medical Society was called to order on May 3rd, 1942, at 2:00 P.M. at the Naniloa Hotel. There were 15 members present; Dr. Steele Stewart, Dr. Richard Lee and several military physicians were guests.

Scientific papers were presented: Weil's Disease with the Differential Diagnosis was presented by Dr. Eklund; Dr. Keay presented the laboratory and clinical findings of the disease; Dr. Patterson discussed the clinical findings and his experiences in a series of ten cases. Considerable discussion on Weil's Disease and associated problems was presented by members and the military personnel.

Dr. Phillips reported that an order regarding the sale of sulfa drugs was being worked on and that the Army had agreed that cases of venereal disease need not be hospitalized if the physician could control the case and give it adequate treatment, but the consent of Army officials must be obtained to forestall hospitalization.

Dr. Orenstein reported that the mass immunization date had been changed to June 8th; that stations are being set up and the funds set up for the payment of physicians at the rate of $5.00 per hour. Considerable discussion was had in regard to the fee schedule for mass immunization if done by individual industries and concerns. The consensus was that we abide by the previous agreement of $1.00 per injection and that no cut-rate prices be given. No definite action was taken as the Society seemed to be in accord.

Amendments to the by-laws as circulated were adopted as follows: Amend Chapter II, Section 2, to read: "For the duration of the present war emergency the President, after consulting with the Vice-President and Secretary, shall be empowered to call a meeting of the Society at any time it is deemed necessary and such a meeting shall be considered a regular meeting, and furthermore, such a meeting shall be called upon the request of any five members." Amend Chapter III, Section 1, to read: "The Officers of the Society shall be elected at the March meeting in each year . . . "

Announcement was made of the annual meeting of the Territorial Association to be held June 6th and 7th, 1942.

The election to membership of Dr. Yamanoha was postponed until the next meeting due to the small membership present.

EDMUND TOMPKINS, M.D., reporting.

MAUI COUNTY MEDICAL SOCIETY

The following committees were appointed to serve for the year 1942-1943:

Medical Defense Committee:
R. J. MCARTHUR, *Chairman*
H. H. SEILER
WILLIAM OSMERS
GORDON H. LIGHTNER
WILLIAM T. DUNN
K. P. JONES
ROBERT KNIFFEN

Committee on Sanitation:
C. J. Kusunoki, *Chairman*
George Zane
Edward Mau
Miss Alma Whitman

Special Committees:
Maui Plasma Bank—Gordon H. Lightner
Transfusion—William Patterson
Orthopedic—William T. Dunn
Head and Spinal Cord Injuries—E. H. Anderson
Burns—H. H. Seiler
Gas—C. J. Kusunoki

HONOLULU COUNTY MEDICAL SOCIETY

The Annual Meeting of the Honolulu County Medical Society was held on Sunday, April 5, at 1 p.m. in the Mabel Smyth Building. 58 members were present. Reports from officers and committees were heard.

In addition to the officers listed at the head of this section of the Journal, the following were elected by the membership:

Board of Governors: A. G. Hodgins
A. V. Molyneux
S. E. Doolittle

Alternate, Board of Governors: Richard K. C. Lee
William Winter
Jesse Smith

Board of Censors: Gardner Black

Committee on Forms of Medical Practice:
L. A. R. Gaspar

Hawaii Medical Service Association:
A. V. Molyneux
E. W. Mitchell
L. A. R. Gaspar
Richard Sia

The membership was asked whether it was in favor of an annual meeting of the Territorial Association. It was generally felt that the business session and the election of officers were compulsory. Dr. McArthur of Maui, who was present, said his Society favored a territorial meeting, and while many members will not be able to attend, the councillors and delegates will probably be present.

Dr. Haralson called attention to the impending epidemic of jaundice, stating that on the outside islands, particularly in military areas, a considerable number of cases had appeared which are identified as "acute hepatitis". He cautioned the doctors to be on the lookout for jaundice, to isolate cases at home or send them to hospitals, and to advise the Board of Health if any considerable number appear.

Because of their general interest, the reports of the Board of Management of the Mabel Smyth Building, the Workmen's Compensation Committee, the Post Graduate Committee, and the Preparedness Committee are here quoted:

Report of Board of Management
Mabel Smyth Building
Lyle G. Phillips, M.D., chairman

As of December 1, 1941, the assets of the building totaled $102,840.11, this including cash on hand of $2,089.12; the building itself $83,880.03; furniture and fixtures $6,939.64; air conditioning system and sundry equipment totaling $6,918.99; with contributions to be solicited in order fully to meet further construction costs, $3,012.33.

Outstanding against these assets is a note to the Margaret Jones Memorial, $4,990.00. Revenue from the building during the past year totalled $3,550.09, of which $2,346.67 was from regular rentals; $672.50 from rental of the auditorium, and $458.42 receipts from teas, luncheons etc. Expenditures total $3,438.64. This left an operating profit of $111.45.

Depreciation on building equipment, furniture and fixtures was estimated at $3,865.86.

With the onset of the war the possibilities of increasing revenue from rentals of the auditorium disappeared; also there was a reduction in the number of teas and luncheons previously held. As a result, the regular expenses of the building have, for the past three months, slightly exceeded the revenue; however, sufficient voluntary contributions have been made to cover this loss for the time being.

The building's first year has definitely demonstrated its value and usefulness to the community. It has become a center for activities of the medical and aursing professions which has filled a long felt want.

Workmen's Compensation
Committee Report
F. J. Pinkerton, M.D., chairman

About the first of July the Board of Governors asked this committee to review the present industrial fee schedule in view of opinions expressed that the schedule was out of line with the present industrial situation. At that time the regular committee of three members, namely, Drs. Pinkerton, Strode, Fronk, was enlarged to include Drs. West, Black, Batten and Duryea. To help it in reaching a decision, the committee sent out a questionnaire asking each member of the Society to answer specific questions: namely, whether they were satisfied with the present industrial accident fee schedule and wished

it to continue without major revision, or whether a sufficient number of items needed revision to warrant opening up the issue of revising the schedule with the insurance companies and industrial firms, and, members were asked to suggest individual items in the fee schedule which they believed needed revision.

Some 25 blanks with suggestions for change were submitted for the committee's consideration when it met on August 15th. Since by negative report and lack of report it appeared that the society was overwhelmingly in favor of no revision, the Committee decided not to make any revisions unless the insurance companies have raised their premiums to industrial firms, in which case a blanket increase throughout the schedule seems indicated.

At that time I was authorized to take up with the Hawaiian Workmen's Compensation Commission, the method by which they arrive at premiums charged. The contractor makes application to the Hawaiian Workmen's Compensation Commission either on a job basis or on an annual payroll of so many individuals at a salary of so much, and the fees range from 10 cents per $100 on the less hazardous contracts to between $6 and $7 per $100 on the very hazardous contracts. The premiums charged a given company would be quite different than those charged to another company, based on experience and risks. Under the national scheme an insurance company is limited in the amount allowed for overhead expense. In this way the medical man, the company and the man insured gets insurance at a cost controlled by a national board.

I speak of this at length because we are faced with an increased amount of governmental work in the Territory. Practically all private contracts are now permitted to function solely with the consent of the government; while the government may not have control over the carpenter building our home it does have control over the availability of materials, the wage schedule, etc. So that indirectly the Government is in control of practically all contract work in the Territory.

The vast majority of the work in the Territory is being done by the government. It is all done on a cost plus basis with no definite contract so there is no basis for a definite insurance premium. It is recommended by the Compensation Association that a well informed committee of the medical society meet with the Commission to bring us up to date on the status of compensation insurance under these new conditions. I believe it would be wise to appoint a small committee of doctors familiar with the subject who would report back whether the fee schedule should be revised basically, or if individual controversial items should be changed. Certain items are badly out of line, some are so low that one is tempted to dishonesty to make up for losses if one has too many of certain cases. On the other hand, from the insurance man's point of view there are seven or eight items which they consider inordinately high.

At the beginning of this year the Board of Governors instructed Dr. Gaspar, president, to appoint a special committee to investigate medical economic matters arising particularly as a result of the emergency situation following December 7. Although the committee was to concern itself with general economic matters, its work boiled itself down to workmen's compensation consideration; which report of that Special Committee, made recently to the Board of Governors, is contained in the March issue of the HAWAII MEDICAL JOURNAL on page 279.

REPORT OF THE PREPAREDNESS COMMITTEE

H. L. ARNOLD, M.D., chairman

The present Preparedness Committee was elected by the Medical Society, as you will all remember, at a special meeting held in April of 1941. Up to that time Dr. Fronk and Dr. Faus had been vainly attempting to interest the profession in what was then alluded to as "preparedness for disaster." The frank statement of Colonel Edgar King at that meeting, calling attention to the serious need for this progress, furnished the impetus which made possible the development of the program. The various members of the Committee were assigned to duty at its first meeting on April 13th. They were: Dr. Arnold, Chairman and Executive; Dr. Judd and Dr. Strode in charge of Surgical Teams for Hospitals; Dr. Larsen in charge of Hospital Expansion and Evacuation; Dr. Pinkerton in charge of Liaison with the American Red Cross, Chamber of Commerce and other agencies; Dr. Withington in charge of Plans for Evacuation of Casualties; and Dr. Faus in charge of Plans and Training. Dr. Withington was soon compelled to resign from the Committee because of his entrance into the Naval Medical Service and his place was taken by Dr. Benyas, who was appointed by the Board of Governors.

The activities of the Committee have been far too extensive and complicated to permit even a synopsis of them, but the minutes of all the meetings are on file in the office of the Medical Society and may be consulted at any time by any member of the Society. About 4,500 persons were trained in first aid and in the other duties connected with the operation of an aid station. Twenty aid stations were set up over the island in areas designated by the Department Surgeon and these have continued to date. It should be noted that each aid station serves approximately 15,000 persons on the average. More than 200 trucks suitable for conversion to ambulances were volunteered by patriotic firms in the city and their conversion had been effected and the ambulances supplied at the onset of war. The story of what they have done is familiar to you all and, if not, may be read in the past numbers of the HAWAII MEDICAL JOURNAL.

Supplies and funds for the equipment and the operation of these stations were furnished up to the beginning of the war by various agencies, principally the American Red Cross, the Chamber of Commerce and the City and County of Honolulu. All expenses since the beginning of the war have been borne by the Office of Civilian Defense, except for the donations which have been made from time to time by the Red Cross and the Army, and these have been extensive. The Red Cross, particularly, is still furnishing enormous quantities of dressings and other supplies.

About two weeks after the beginning of the war it became apparent that some means of livelihood would

have to be provided for a large proportion of the workers in the aid stations because while they could continue to serve on a spasmodic basis from time to time, as volunteers, they could not serve full-time every day and still support themselves. Accordingly, at a conference with Colonel King of the Army, Mr. Beasley of the Department of Social Security, Dr. Haralson of the Board of Health, and Mr. Doty, the then Director of Civilian Defense for the Territory, it was decided to set up a scale of pay based upon the fundamental proposition that about $125.00 a month was a minimum which could support an individual completely. Nurses were paid the scale of pay which the Army provides for civilian employed nurses. Doctors in aid stations were given the pay of First Lieutenants, and Supervisors and higher positions with pay corresponding to higher ranks in the Medical Corps of the Army. These salaries, of course, were all base pay and contain no increments for longevity. The skeleton full-time staff for twenty-four hour coverage of each aid station is sixteen. Thirty full-time ambulances are authorized and are in the process of acquisition, with sixty drivers, one for day, and one for night, and ten motorcycle messengers.

The changes in organization have been many and interesting. Immediately before the City and County began its payment to the maintenance of the Emergency Medical and Ambulance Service, the Chairman of this Committee was appointed as a member of the Major Disaster Council. Up to that time, the medical profession had been represented on that Council by Dr. Mossman, City and County physician and Dr. Haralson, the Territorial Commissioner of Health. Late in December, the activities of this organization were taken over by the Office of Civilian Defense. In January, Dr. Haralson was appointed by the Governor as Territorial Administrator of Emergency Medical and Related Services, and your Chairman was made Executive Officer for the Services for the Island of Oahu. From the standpoint of administration, all emergency medical activities under the Office of Civilian Defense on this Island are now under the one office. It has been necessary for the Chairman to render full time service since the beginning of war, although he hopes that in the near future it may be possible for him to serve only as a volunteer and to devote a portion of his time to his own business.

The Emergency Hospitalization Program has been put in charge of Dr. Linson of the Public Health Service. A 300 bed hospital is three-fourths completed at Wahiawa, a 450 bed hospital at Sacred Hearts Academy in Nuuanu, and a 100 bed hospital at the Manoa Japanese Language School. This latter hospital will not be operated until and unless the military situation makes it necessary. It is planned to complete it, equip it, and lock it up and hold it for an emergency. The other hospitals will be operated on a small scale as soon as they are sufficiently completed. Any physician on the staff of Queen's Hospital may admit patients to Sacred Hearts as soon as it is opened and any physician not on that staff is a liberty to apply for permission to take patients there if he so desires. The same policy will be followed at the hospital at Wahiawa.

Your Chairman has continued to consult the members of the Preparedness Committee on every occasion when he felt that a matter of policy was involved, and this will be continued as long as the present personnel remains. The exact status of this Committee, as far as the Medical Society is concerned, remains somewhat obscure. It was elected by the Society, which is, in itself, a new departure, and no term was fixed for the service of the members. The Society should decide at this meeting whether or not they desire to continue these men in office and if not, steps should be taken to replace them with others.

The cooperation of the Medical Society has been practically 100 per cent perfect. I wish to express my deep gratitude, in the name of the Committee, to those members of the profession who have served so faithfully and efficiently in the manifold duties which have been asked of them. No Honolulu doctor has ever refused, except for perfectly valid reasons, to do anything that he has been asked to do by this Committee or by its Chairman. In conversation with the Department Surgeon the other day, he expressed to me very much the same feeling, that the cooperation which he had received from the local medical profession was, as he put it, simply splendid. We thank you again.

The Society voted unanimously that the present Preparedness Committee be continued for the duration and gave it a vote of confidence.

N. M. Benyas, M.D. reporting.

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NOTES AND NEWS

A bulletin devoted to the vitamin content of food, especially Hawaiian grown foods, is being planned for publication by the Hawaii Agricultural Experiment Station of the University of Hawaii. Progress Notes #36 lists some 55 Hawaiian grown fruits and vegetables with a content of vitamin A, Vitamin B, and ascorbic acid (Vitamin C) content. Copies of these notes are available upon request—address Carey D. Miller, Nutritionist.

The maximum prices established by the Price Administrator under the Emergency Price Control Act of 1942 apparently do not apply to physicians, according to Section 10-C "Services excepted".

General Order #105, May 16, 1942, prohibits the use or operation of any electrical diathermy type machine after Sunday, May 17.

We are informed that regulations are being drawn up under which permission will be granted to operate these machines. In the meantime application blanks for such permission are available in the office of the Medical Society.

Reports of Hawaii medical activities during the blitz are receiving wide recognition on the mainland. Almost every mail brings several comments either on the reports made in the January issue of the Journal or resolutions passed by county societies as a result of Dr. Moorhead's reports of local activities. The American Medical Association News digested Dr. O. L. Schattenburg's article on obstetrics; Western Public Health cites Dr. E. E. McNiel's article on studies made on the reaction to war and blackout and their effect on children; the article "War Came to Hawaii" appearing in our January issue is being reprinted by the Indiana State Medical Journal, and the section of this same journal dealing with the first aid and ambulance services under action on December 7, is being reprinted in the San Diego County Society bulletin.

Work has begun on the new building on Queen's Hospital grounds to house the Blood Bank.

NEW MEMBERS

Dr. Arthur W. Duryea announced the opening of offices in the Young Hotel Building recently.

Dr. C. Alvin Dougan has been honored with membership in the American Trudeau Society.

Dr. Samuel D. Allison, Venereal Disease Control Officer for the Board of Health, recently went to the Big Island to discuss with the local administrative officers and physicians the frequency of venereal disease cases and methods of control.

Dr. Marie Faus spent May 1-18 on the island of Hawaii giving a course in home protection under the auspices of the Adult Education Department of the University of Hawaii. Her classes were attended daily by at least 100 women.

CORRECTION: The letter to the editor appearing in the March issue under Notes and News was inadvertently left unsigned. The author was Dr. R. B. Cloward.

Dr. Schattenburg's paper telling how the obstetric program operated during Honolulu bombing on December 7, which appeared in the Journal of the American Medical Association, April 4, has received additional publicity through the circulation of the American Medical Association News which was released for publication and reprint throughout the United States.

Dr. Richard K. C. Lee and Dr. Steele F. Stewart recently held a series of crippled children's clinics on the island of Hawaii.

Dr. Leo Bernstein, U. S. Public Health Service reserve, has taken up his duties as health officer for the county of Kauai.

Dr. N. M. Benyas has been appointed by Governor Poindexter to the Territorial Psychiatric Commission to succeed Dr. R. B. Cloward.

Dr. Edwin T. Kam has been appointed government physician for the Kaneohe-Kaaawa district on the windward side of Oahu. Dr. Clarence Chinn is now government physician for the Kailua-Lanikai-Waimanalo district.

Dr. T. L. Taylor has resigned as superintendent of Waimano Home. Dr. E. T. Ching has been made Medical Director for that institution.

A report of research and investigation on rat borne diseases—typhus fever, infectious jaundice, and human trichinosis—has been completed by DR. J. E. ALICATA and is available at the County Society Library.

DR. R. J. MCARTHUR visited Honolulu in April and we were glad to have him at our Thursday morning meeting.

DR. and MRS. WILLIAM SHANAHAN are being congratulated on the arrival of their daughter, Sue Ellen.

The MARTIN LICHTER'S added a third child to their family on March 22—a daughter, Linda M.

DR. KUSUNOKI has recovered lately from an attack of kidney stones. He made a trip recently to Honolulu to observe the operation of the immunization program on Oahu preparatory to such a program being undertaken on the Island of Maui.

DR. RICHARD Y. SAKIMOTO was married to Miss Eleanor Matsumoto in April.

There will be three in the family of DR. JOHN SANDERS some time in July.

The many friends of DR. F. A. ST. SURE, SR. will be glad to know that he has returned from Lane Hospital, much improved from pernicious anemia, and is in his office every day.

There is a new arrival at Honolua Plantation — DR. T. P. CHOU, formerly the head of the E.E.N.T. department in the Red Cross Hospital at Shanghai. DR. CHOU was educated in England and at Yale.

35 registered nurses have arrived from the mainland on the last convoy through the efforts of Mrs. Akana and have been assigned to hospitals on all the islands. The need for more nurses is still overwhelmingly great.

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LIBRARY NOTES

OLD JOURNALS

Every once in a while someone tells us he's cleaned out his office and has thrown away his old journals. *Please don't throw any journals away* without giving the Library a chance to see if they are of value.

Many of our journal files still have gaps in them. There is no money available to purchase missing numbers, and although we have made steady progress in securing these by exchange with mainland libraries, this is a slow process and will take years.

Even if your old journals are not needed for our files, we still can put them to good use, especially now. The Army and Navy doctors in isolated stations throughout the islands are eager for them.

So please, no matter what type of medical journal, old or new, that you are about to discard, give us a chance at them. It may be just what we need most. Sometimes a very recent journal walks away from the racks.

REPRINT AND PAMPHLET FILE

Now that the work of reclassifying and preserving the books has been completed, attention is being given to the thousands of reprints accumulated over the years. These are being evaluated, classified and indexed. To build up a valuable reprint file would be a mountainous job, but we do believe there should be on file in the library as many reprints as possible of articles written locally or about local observations. Contributions of such material would be welcome, and we can now give assurance that it will be well preserved and made useful and available.

RECENT ACCESSIONS.

Callander—Surgical Anatomy
Rasmussen—Principal Nervous Pathways
Hertzler—Technic of Local Anesthesia
American Heart Assn.—Nomenclature and Criteria for Diagnosis of Diseases of the Heart.
Harrison—Failure of the Circulation
Andrews—Diseases of the Skin
Sutton—Diseases of the Skin
Norris—Diseases of the Chest and the Principles of Physical Diagnosis
Newberg & Mackinnon—Practice of Dietetics
Sevringhaus—Endocrine Therapy in General Practice
AMA—Primer on Fractures
Key and Conwell—Management of Fractures, Dislocations and Sprains
Watson-Jones—Fractures and Other Bone and Joint Injuries.
Castiglioni—A History of Medicine
Haggard—Mystery, Magic and Medicine
Sigerist—Great Doctors
MacEachern—Hospital Organization and Management
Zinsser—Resistance to Infectious Diseases
Beckman—Treatment in General Practice
Cecil—Textbook of Medicine
Goepp—Medical State Board Questions and Answers
Cushing—Intracranial Tumors
Assn. for Research in Nervous and Mental Disease—Infections of the Central Nervous System
Hassin—Histopathology of the Peripheral and Central Nervous System
Crossen—Operative Gynecology
May—Manual of the Diseases of the Eye
Campbell—Operative Orthopedics
Boyd—Pathology of Internal Diseases
Park—Pathogenic Microorganisms
Stitt—Practical Bacteriology, Haematology and Animal Parasitology
Holt & Howland—Diseases of Infancy and Childhood
AMA—Nostrums and Quackery
AMA—Epitome of Pharmacopeia of the U. S. and the National Formulary
AMA—Useful Drugs
Goodman & Gilman—Pharmacological Basis of Therapeutics
Lewis—Vascular Disorders of the Limbs
Bard—MacLeod's Physiology in Modern Medicine
Bodansky & Bodansky—Biochemistry of Disease
Buie—Practical Proctology
Rankin & Graham—Cancer of the Colon & Rectum
Golden—Diagnostic Roentgenology
Bailey—Intracranial Tumors
Sheehan—Manual of Reparative Plastic Surgery

Blalock—Principles of Surgical Care

Thoma—Clinical Pathology of the Jaws

Strong—Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases. 2 vols.

Davison—Compleat Pediatrician.

Kracke—Diseases of the Blood

Willius & Keys—Cardiac Classics

Scudder—The Treatment of Fractures

Youmans—Nutritional Deficiencies

Penfield & Erickson—Epilepsy and Cerebral Localization

Jordan & Burrows—Textbook of Bacteriology

Rowe—Clinical Allergy

Brakdy & Kahn—Trauma & Disease

Brown—Surgery of Oral and Facial Diseases and Malformations

Speed—A textbook of Fractures and Dislocations

Pardo-Castello—Diseases of the Nails

GIFTS:

Given by Dr. J. H. Linson

Flugge:—Grundriss der Hygiene, 1921.

Passow—Trommelfellbilder, an atlas, 1912.

Schultze and others—Lehrbuch der Psychiatrie, 1920.

Feer—Lehrbuch der Kinderheilkunde, 1920.

Lewandowsky—Praktische Neurologie, 1919.

Tappeiner—Lehrbuch der Arzneimittellehre, 1920.

Axenfeld—Lehrbuch und Atlas der Augenheilkunde, 1920.

Kustner—Lehrbuch der Gynekologie, 1920.

Kaufmann—Lehrbuch der Speziellen Pathologischen Anatomie, 1911, 2 vols.

Korner—Lehrbuch der Ohren-Nasen und Kehlkopf-krankheiten, 1920.

Muklens—Die Plasmodiden, 1921.

Doderlein—Leitfaden fur den geburtshilflichen Operationskurs, 1919.

Wullstein und Kuttner—Lehrbuch der Chirurgie, 1920. 3 vols.

Casper—Handbuch der Cystoskopie, 1921.

Matthes—Lehrbuch der Differentialdiagnose innerer Krankheiten, 1921.

Schmieden—Der chirurgische Operationskursus, 1920.

Sahli—Lehrbuch der klinischen Untersuchungs-methoden, 1920. 3 vols.

Seifert and Miller—Taschenbuch der medizinisch-klinischen Diagnostik, 1920.

Bumm—Grundriss zum Studium der Geburtshilfe, 1920.

Herxheimer — Schmaus' Grundriss der pathologischen Anatomie, 1919.

Liepmann—Kurzgefabtes Handbuch der gesamten Frauenheilgunde, 1914.

Krehl—Lehrbuch der inneren Medizin, 1920. 2 vols.
Given by Dr. R. B. Cloward

Hamby: The Hospital Care of Neurosurgical Patients.
Given by Dr. A. L. Craig

J. of Bone & Joint Surgery: 1927 - 1942

ON LOANS DEFINITELY

J. of Nervous & Mental Diseases - monthly:
1939, 1940, 1941.

J. of Neurophysiology - bi-monthly:
1939, 1940, 1941.

Southern Medical Journal - monthly:
1940, 1941.

Brain - quarterly:
1939, 1940, 1941.
Given by Dr. R. B. Cloward

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Sundays:	10:00-12:00 Noon 2:00-4:00 p.m.

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1. Books - all but reference books may be taken out on loan.
2. Journals - All journals over two (2) years of age may be taken out on loan.
3. Loan period - Seven (7) calendar days without deposit of loan fee.
4. Fine of $1.00 per day to be charged for books and journals due over seven (7) calendar days.
5. Lost and unreturned books will be billed at twice their cost.
6. Postage and messenger charges to be paid by borrower.
7. Copying service - 25 cents per 100 words.